

China's Energy Efficiency Policy in Industry

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***Contribution of Mitigation Policies to Sustainable Development
Goals in Non-Annex I***

“Working Together to Respond to Climate Change”
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Introduction

- Background paper: “Energy Efficiency and CO₂ in China’s Industry: Tapping the Potential”
- Scope: Energy-intensive industrial sectors; excludes power industry
- Review of energy efficiency policies
- There are no policies in China that take GHG mitigation as their target.
 - CO₂ emission reductions are a by-product of energy efficiency policies
- Personal opinion

Industry Plays a Very Important Role in China's Economy

In 2003

- Gross output: US\$ 670 billion, 40% of GDP
- Final energy consumption: 0.83 billion toe
 - 79.4% for energy use, 20.6% for non energy use
 - 72% of China's total final energy consumption
- CO₂ emissions: 2 290 MtCO₂
 - 1 124 direct, 1 166 indirect emissions (e.g. from electricity use)
 - 61% of total emissions from energy consumption

China's industrial fabric has changed tremendously

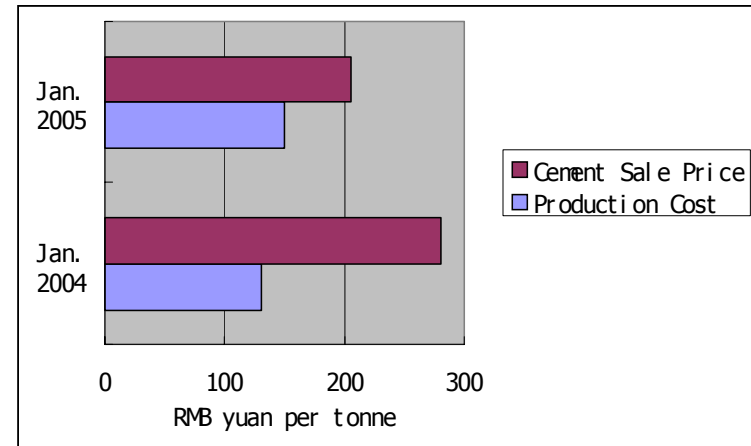
	Output (US\$ billion)	Share (%)
Total	2 283.2	100
Of the Total		
State-owned and State-holding Enterprises	804.5	35.2
Of the Total		
Collective-owned Industry	129.1	5.7
Share-holding Cooperative Enterprises	48.1	2.1
Share-holding Enterprises	985.2	43.2
Foreign Funded Enterprises and Enterprises with Funds from Hong Kong, Macao and Taiwan	717.6	31.4
Of the Total		
Private Enterprises	376.8	16.5

Market forces are playing an increasing role

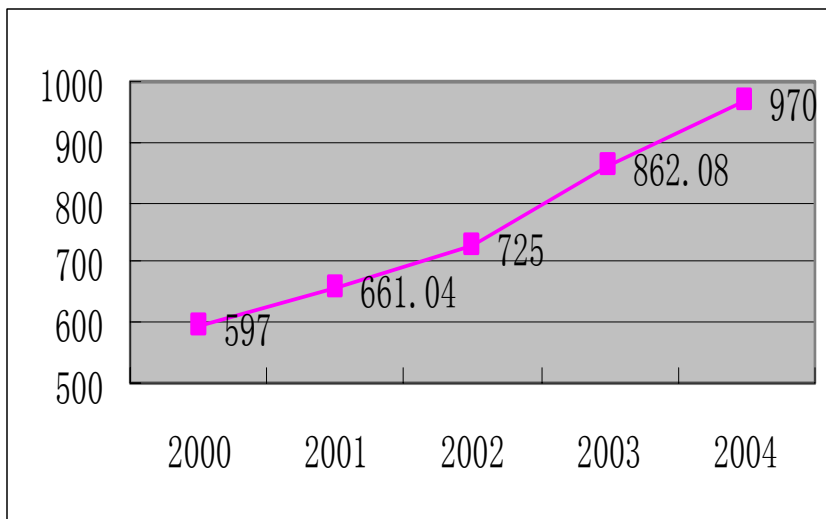
Number of cement kilns

Year	2000	2003
NSP kiln (high eff.)	136	326
Low efficient kiln	7 180	14 707

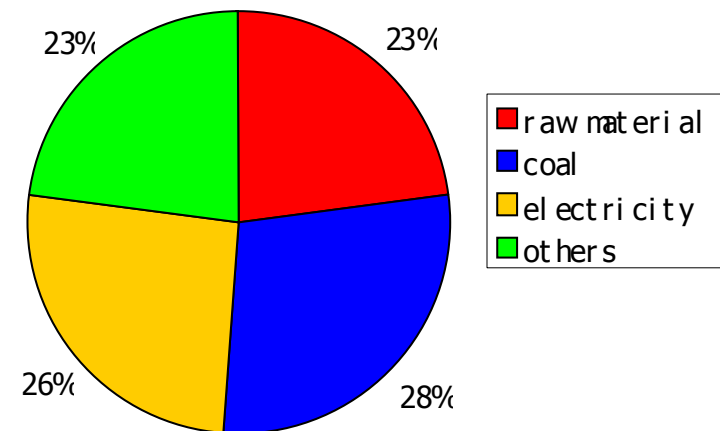
Low efficient kilns were shut down by plant owners in 2005



Strong market demand (Mt)



Cement production cost mix



China's Energy Efficiency Goals

- Reduce the energy intensity (EI) of GDP by 20% between 2006 and 2010
 - Prime Minister Wen: Government Work Report to NPC
- Energy intensity of GDP to decline by 2.2% annually from 2003 to 2010 and 3% annually from 2003 to 2020.

<u>tce/10,000 yuan</u>	<u>2002</u>	<u>2010</u>	<u>2020</u>
<u>EI of GDP</u>	2.68	2.25	1.54

- NDRC: China Medium and Long Term Energy Conservation Plan

Energy efficiency is part of China's broad sustainability strategy

- Support fast growth of economy
- Support more than 1.3 billion people's daily lives
- Energy security
- Local environmental protection
- Regional environmental protection

GHG emission reductions: No obligation, no goal

- The reduction of CO₂ emission is never mentioned as a goal of all policies except one:

“pay attention on GHG emissions”

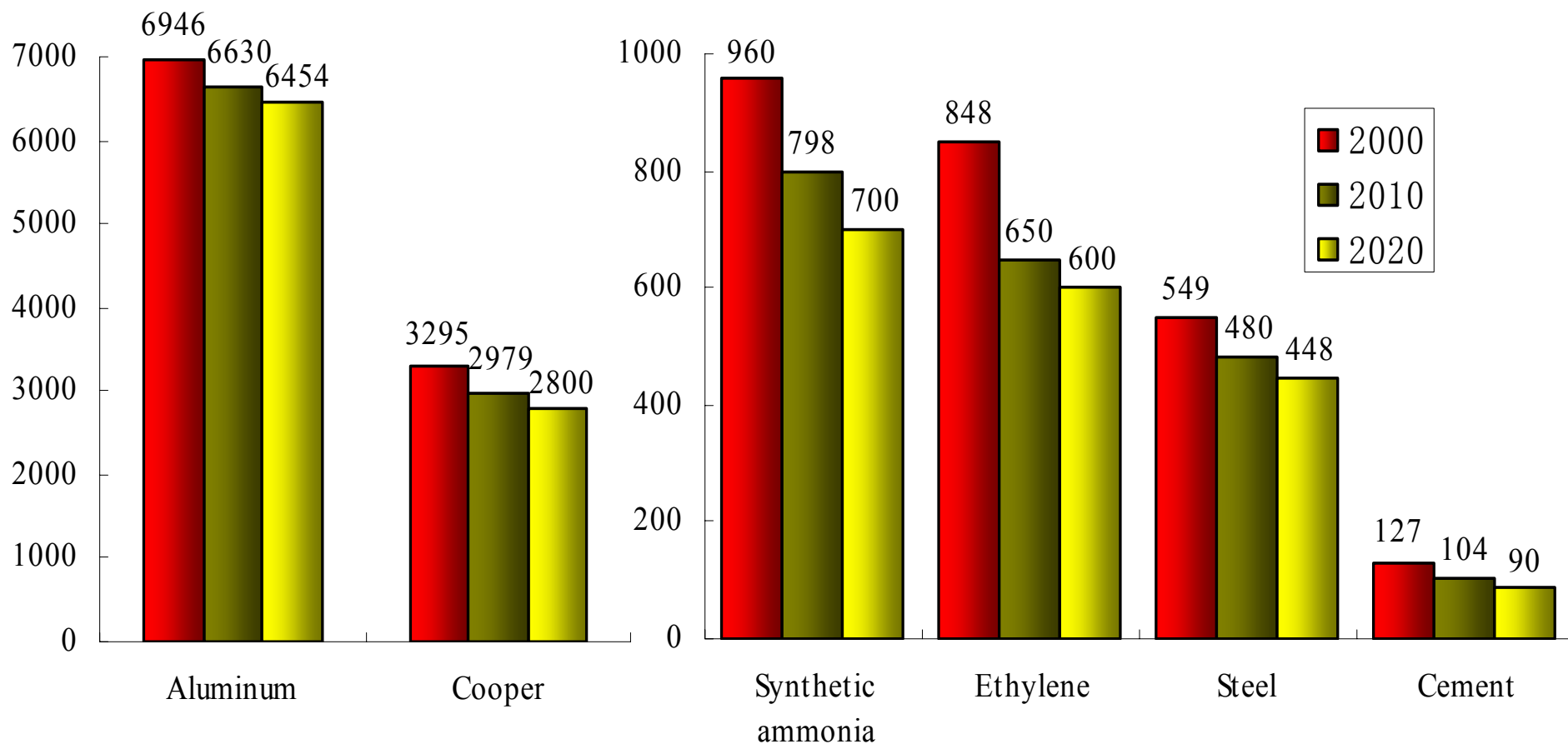
Suggestions for the eleventh five-year national economic and social development plan” (Oct. 2005)

- This sentence is not in the final version of “Outlines of eleventh five-year national economic and social development plan” (March 2006)

Energy intensities of main energy-intensive products decreased a lot but still far behind the world's best practice

Product	China 1990	China 2004	China's best practice (company, year)	World best practice (year)
Steel (kgoe/t) (comparable)	697.9	491.4	472.5 (BaoSteel 2004)	452.2 (2000)
Cement (kgoe/t)	140.7	109.9		88.0 (2000)
Ethylene (kgoe/t)	1106.0	702.8	688.3 (SINOPEC 2004)	440.3 (2003)
Synthetic ammonia (kgoe/t)	940.1	828.8	788.9	--
Aluminum (MWh/t)	16,2	15,1 (2003)	--	14,1 (2003)
Oil refinery (kgoe/t)	105.7	72.7 (2003)	50.69 (Yangzi, 2004)	50.9 (2003)

Targets Have been Set for the Energy Intensity of Various Industrial Products (kgoe/tonne)



How to Get There: Implementation Challenges

- Market forces
- Evaluation of effectiveness of policy implementation

Official document	Energy intensity	1990 or 1994	2000	2020
Outlines(1996)	Steel (tce/kg)	1.61	1.45	
Outlines(2005) or Plan			0.906	0.7
Outlines(1996)	Plain glass (tce/weight case)	27.30	26.0	
Outlines(2005) or Plan			29.8	20
Outlines(1996)	Clinker (tec/ton, fuel)	175- 160	140 - 130	
Outlines(2005)	Cement (tec/ton, fuel & elec.)		162	129
Plan	Cement (tec/ton, fuel & elec.)		181	129

Outlines: Policy Outlines for Energy Conservation Technologies

Plan: China medium and Long Term Energy Conservation Plan

Conclusions

- Great potential for energy efficiency improvements in China industry
 - Currently motivated by energy prices, domestic competition and market demand
- Government has set clear policy directions and targets
- A long way to go to policy implementation