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# CO<sub>2</sub> Emission Reduction in Shanghai: Responding to Climate Change Mitigation

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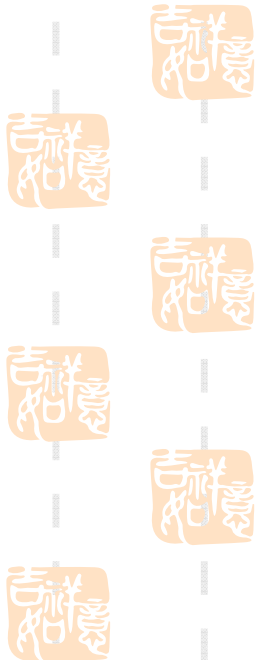
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# OUTLINE

- Background
- Outcomes
- Perspectives





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Table 1. Action plan on CO<sub>2</sub> emission reduction in some cities

# Background



- Around 50 percent of the world's population live in cities.
- Less than one per cent of the earth's surface,
- About 75 percent of the world energy
- 80 percent of GHG emissions.

See the website of c40 cities by accessing

<http://www.c40cities.org/climatechange.jsp>.





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## Background

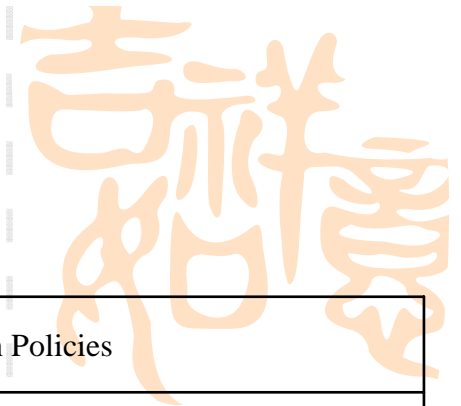


- The developed cities in the middle and lower reaches of Yangtze River are the most important sources of greenhouse gas emissions in China.
- Shanghai is a typical representative of developed cities, as well as a place with high vulnerability regarding climate change.





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# Cities' action

City	Issued Time	Name	Target	Main Policies
London	February 2007	the Mayor's climate change action plan	18.0 Mt CO <sub>2</sub> by 2025	Tackle CO <sub>2</sub> emissions from domestic sector, existing commercial and municipal activity, new build and development, energy supply sector, ground based transport and aviation, etc.
Chicago	2007	Chicago Climate Action Plan	6.5 MMt CO <sub>2</sub> e <sup>11</sup> by 2050	energy efficient building, clean and renewable energy sources, improved transportation options, reduced waste and industrial pollution and adaptation
Tokyo	June 2007	Tokyo Climate Change Strategy	25% reduction by 2020 from the 2000 level	Advance CO <sub>2</sub> reduction measures by companies powerfully, adopt serious stance on the reduction of CO <sub>2</sub> emissions from households, create rules for the urban development in order to reduce CO <sub>2</sub> emissions, promote the reduction of CO <sub>2</sub> emissions from automobile traffic, create Tokyo's unique system
	25th June 2008	Tokyo's Mandatory Cap & Trading Scheme		This scheme covers large CO <sub>2</sub> emitters in Tokyo whose consumption of fuels, heat and electricity reaches 1,500 kiloliters or larger per year.
Cape Town	August 2005	Air Quality Management Plan (AQMP).	Ensure that clean air is achieved and maintained in the city over the next 10 to 20 years	
		Cape Town's State of Energy Report	specific goals for each sector	Policies are divided into 5 energy visions: transport, commerce & industry, residential, government and energy supply.



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## Outline of this work

- Collect data on energy consumption
- Policies and actions responding to

Climate change

- Suggestions





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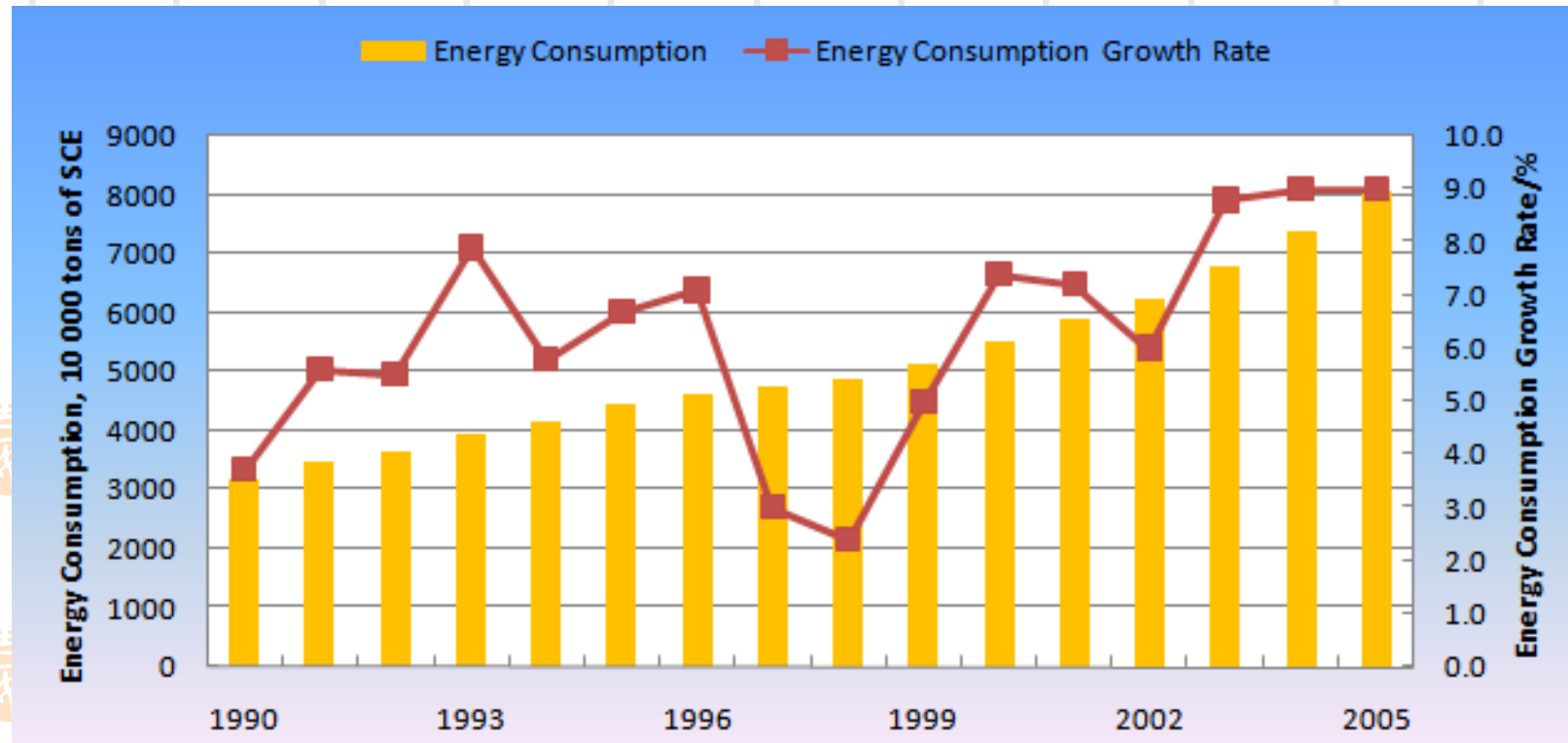


## Outcomes

- Shanghai's energy consumption 1990~2005
- Shanghai's Carbon Emissions, Carbon Sinks and net carbon emissions
- Scenarios Analysis
- Strategy on Carbon Emissions Reduction of Shanghai



# Shanghai's Energy Consumption



**Figure 1 Energy Consumption and Growth Rate in Shanghai (1990-2005)**

Source: Shanghai Statistical Yearbook 2006.

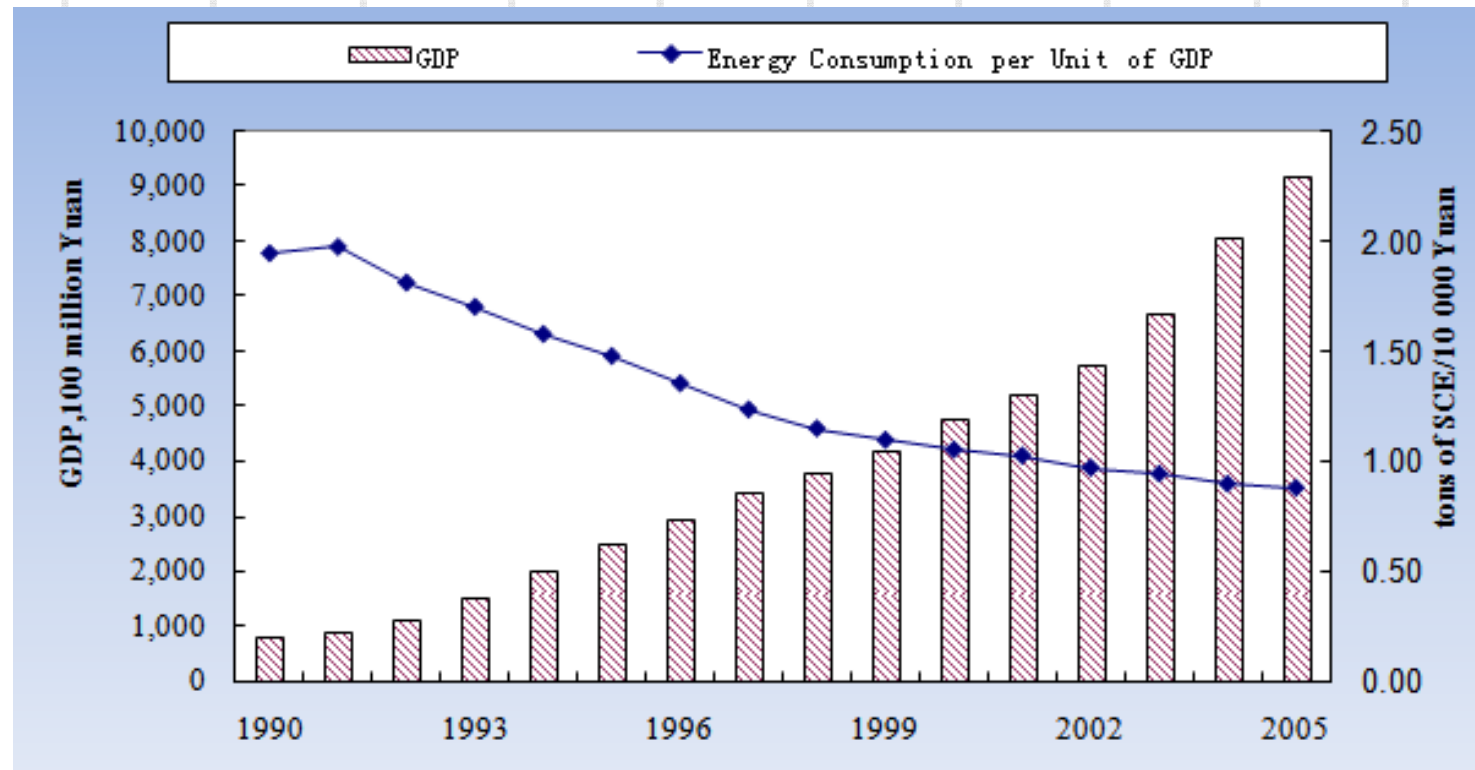




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# GDP and Energy Consumption per Unit of GDP in Shanghai (1990-2005)



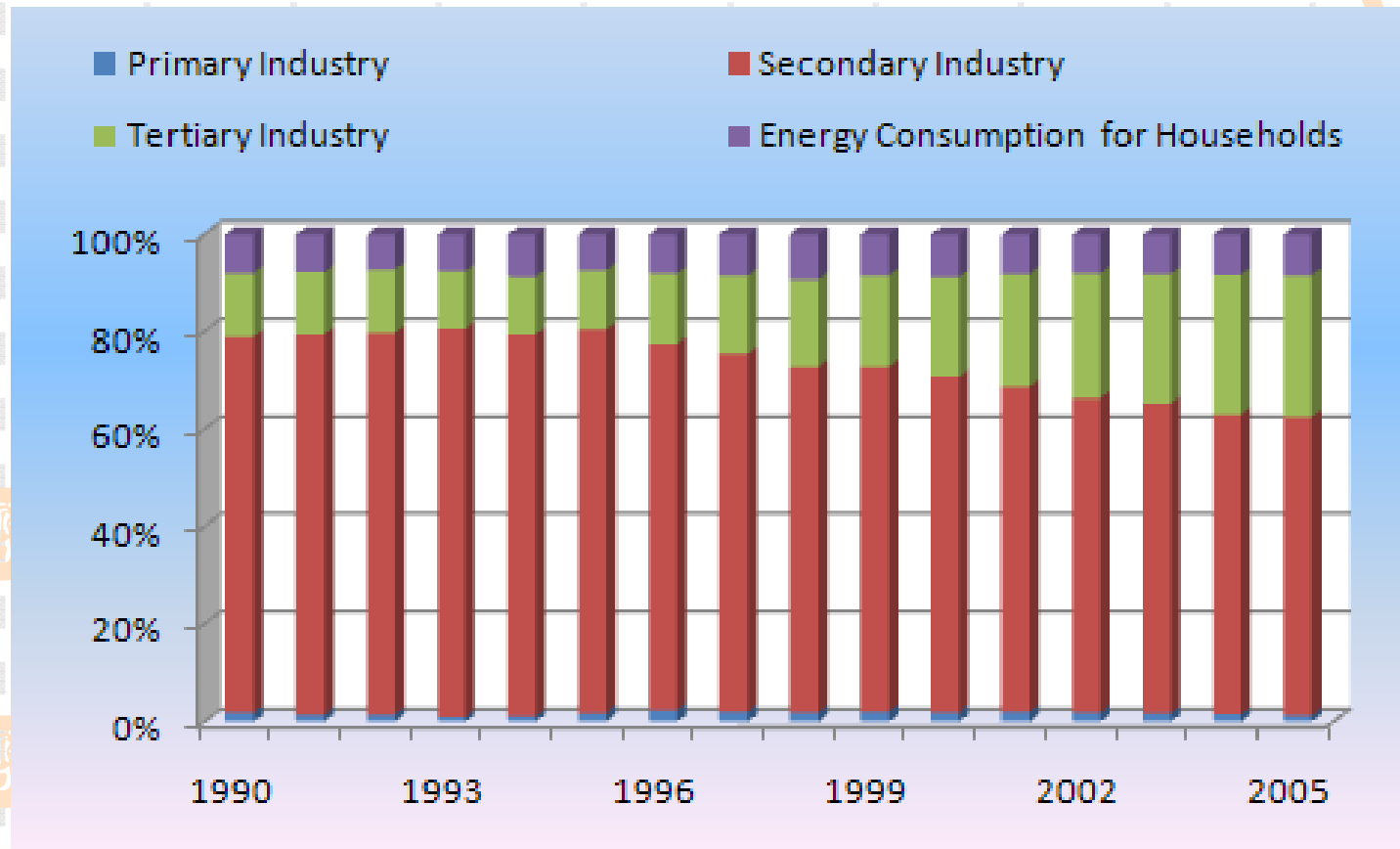
Source: Shanghai Statistical Yearbook 2006





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# Contribution of Industries to End-use Energy Consumption in Shanghai (1980- 2005)



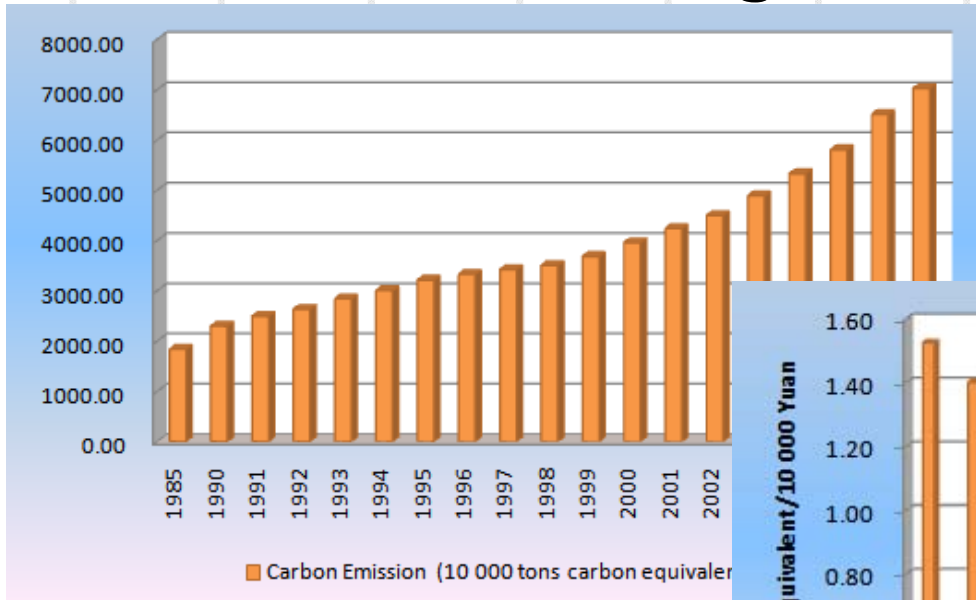
Source: Shanghai Statistical Yearbook 2006



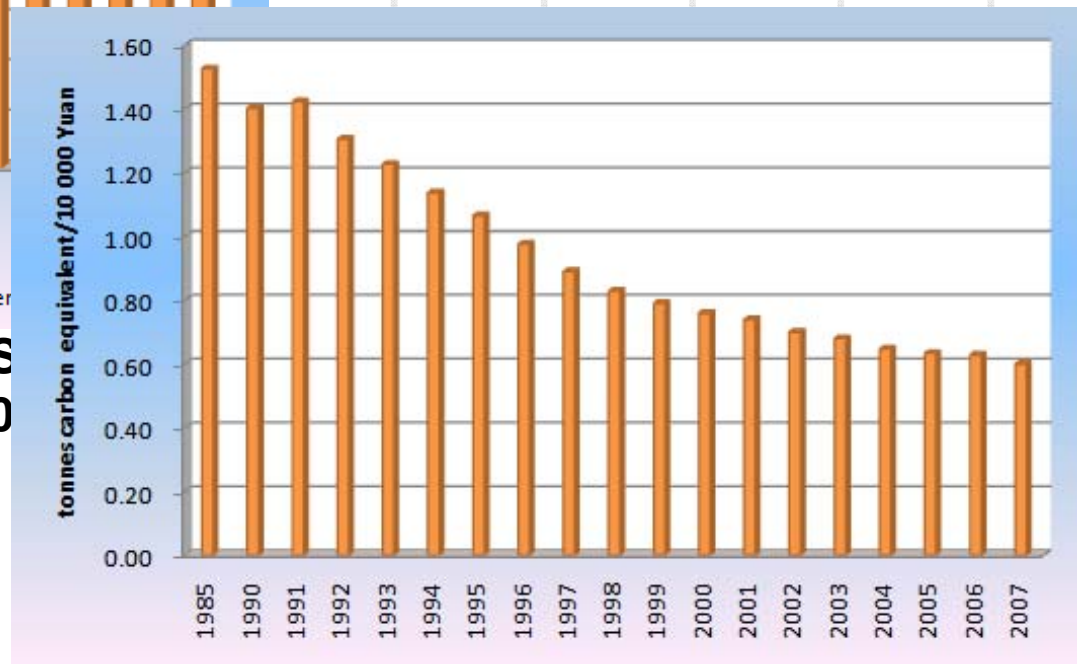
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# Variation of carbon emission in Shanghai (1985-2007)



Status of Carbon Emission in Shanghai over the Years (1985-2007)



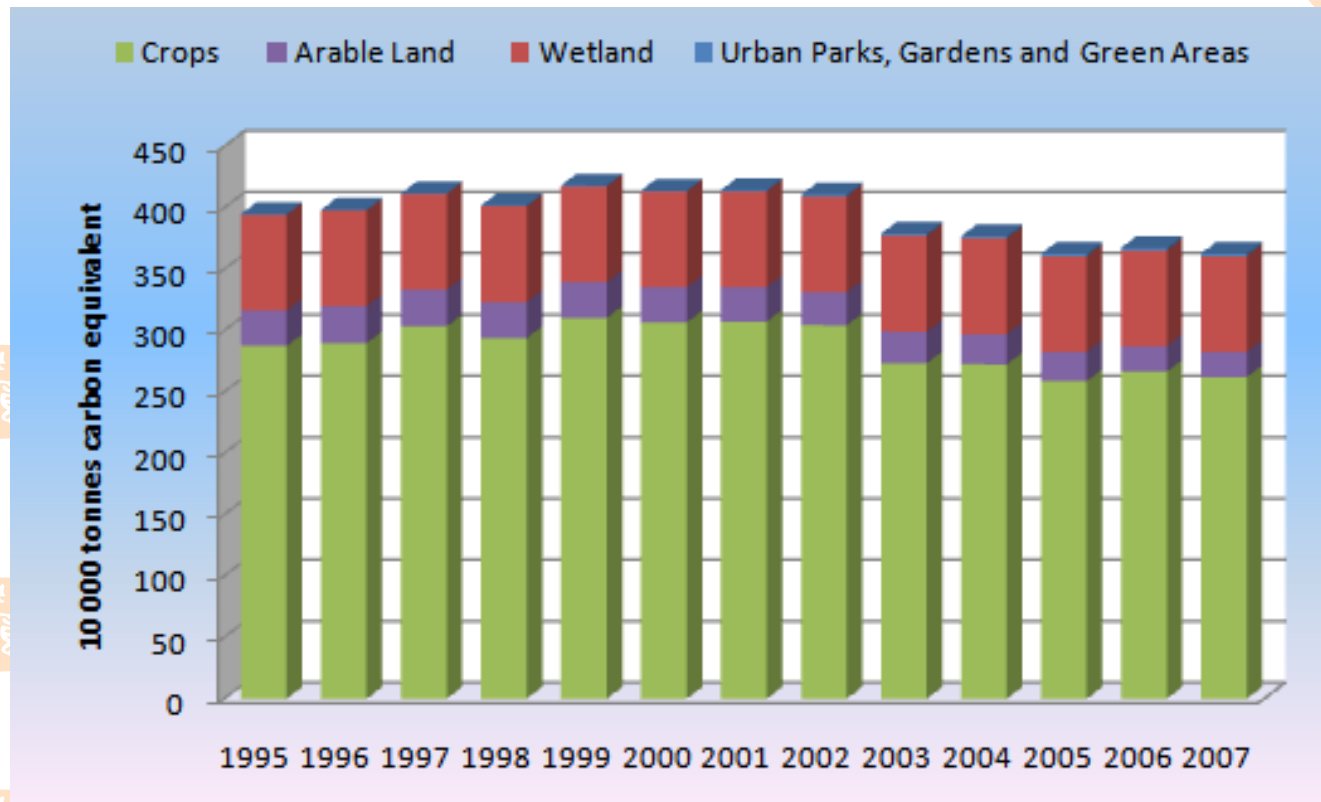
Carbon Emission per Unit GDP in Shanghai (1985-2007)





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# Variation of carbon sink in Shanghai (1995-2007)



**Status of Total Carbon Sink of Shanghai over the Years (1995-2007)**



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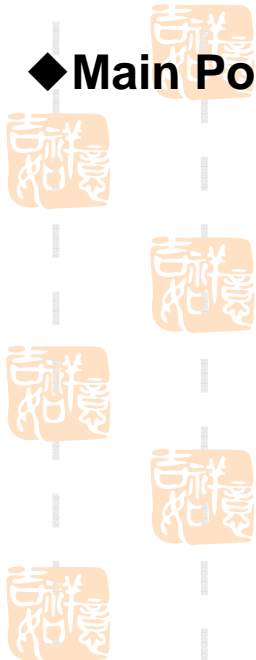
Related policies issued by Chinese government and Shanghai municipality



◆ **China's National Climate Change Programme and White Paper:**

**China's Policies and Actions for Addressing Climate Change**

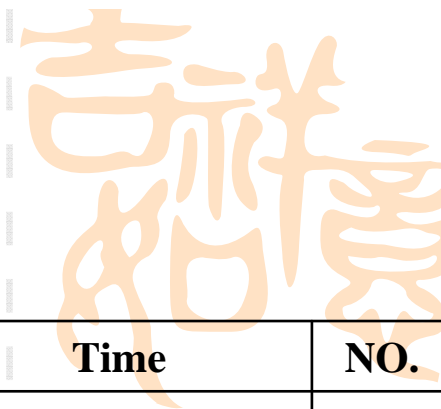
◆ **Main Policies Related to Energy**





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## Related policies



Type	Policy Name	Issurance Organ	Time	NO.
General Policies	<i>The Eleventh Five-Year (2006-2010) Plan for National Economic and Social Development</i>	The 10th Meeting of the Fourth NPCSC	<i>Mar 14, 2006</i>	1
	<i>The Plan for Energy Consumption Per Unit of GDP Targets among the Regions during the Eleventh Year</i>	The State Council	<i>Sep 17, 2006</i>	2
	<i>The Eleventh Five-Year (2006-2010) Plan for Energy Development</i>	NDRC	<i>April, 2007</i>	3
	<i>Decision on further Strengthening the Energy Conservation Work</i>	The State Council	<i>Aug 6, 2006</i>	4
	<i>The Notice of the Implementation Plan for Energy Conservation and Emission Reduction</i>	The State Council	<i>Jun 3, 2007</i>	5
	<i>Energy Conservation Law (amendment)</i>	The 30th Meeting of the Tenth NPCSC	Adopted on Oct 28, 2007 (came into effect since Apr 1, 2008)	6



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# Energy Policies in Shanghai

Type	Policy Name	Issurance Organ	Time	NO.
General Policies	<i>The Suggestion for further Strengthening the Energy Conservation Work in Shanghai</i>	<i>Shanghai Government</i>	<i>May 9,2006</i>	<i>1</i>
	<i>Shanghai Eleventh Five-Year Plan for Energy Development</i>	<i>Shanghai Government</i>	<i>Sep 29,2006</i>	<i>2</i>
	<i>Shanghai Eleventh Five-Year Plan for Energy Conservation</i>	<i>Shanghai Government</i>	<i>Jan 26,2007</i>	<i>3</i>
	<i>The Implementation Plan for Energy Conservation and Emission Reduction in Shanghai</i>	<i>Shanghai Government</i>	<i>2007</i>	<i>4</i>
	<i>Shanghai Energy Conservation Regulations(amendment)</i>	<i>The 10th Meeting of the thirteenth session of SPCSC</i>	<i>Adopted on Apr 23, 2009 (came into effect since July 1, 2009.</i>	<i>5</i>
Specific Policies	<i>Shanghai Building Energy Management Approach</i>	<i>SG</i>	<i>June 13,2005</i>	<i>6</i>
	<i>Shanghai Eleventh Five-Year Plan for Transportation</i>	<i>Shanghai Transportation Bureau</i>	<i>Sep 17,2007</i>	<i>7</i>
	<i>Shanghai Energy-efficient Building Design Standards</i>	<i>--</i>	<i>To be promulgated</i>	<i>8</i>



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# Recommended Strategy

**Carbon Emissions**

**Industrial structure optimization:**  
Advanced manufacturing industry  
and modern service industry



**Energy structure optimization:**  
Clean Energy (Renewable energy)



**Promotion of sustainable consumption**

**Carbon Sinks**

**Protect and develop ecological carbon sinks**







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Thanks for your attention

