

# China's Progress in Energy Conservation and Emission Reduction in Power Industry

Yan, Xiaolu

State Electricity Regulatory Commission of CHINA

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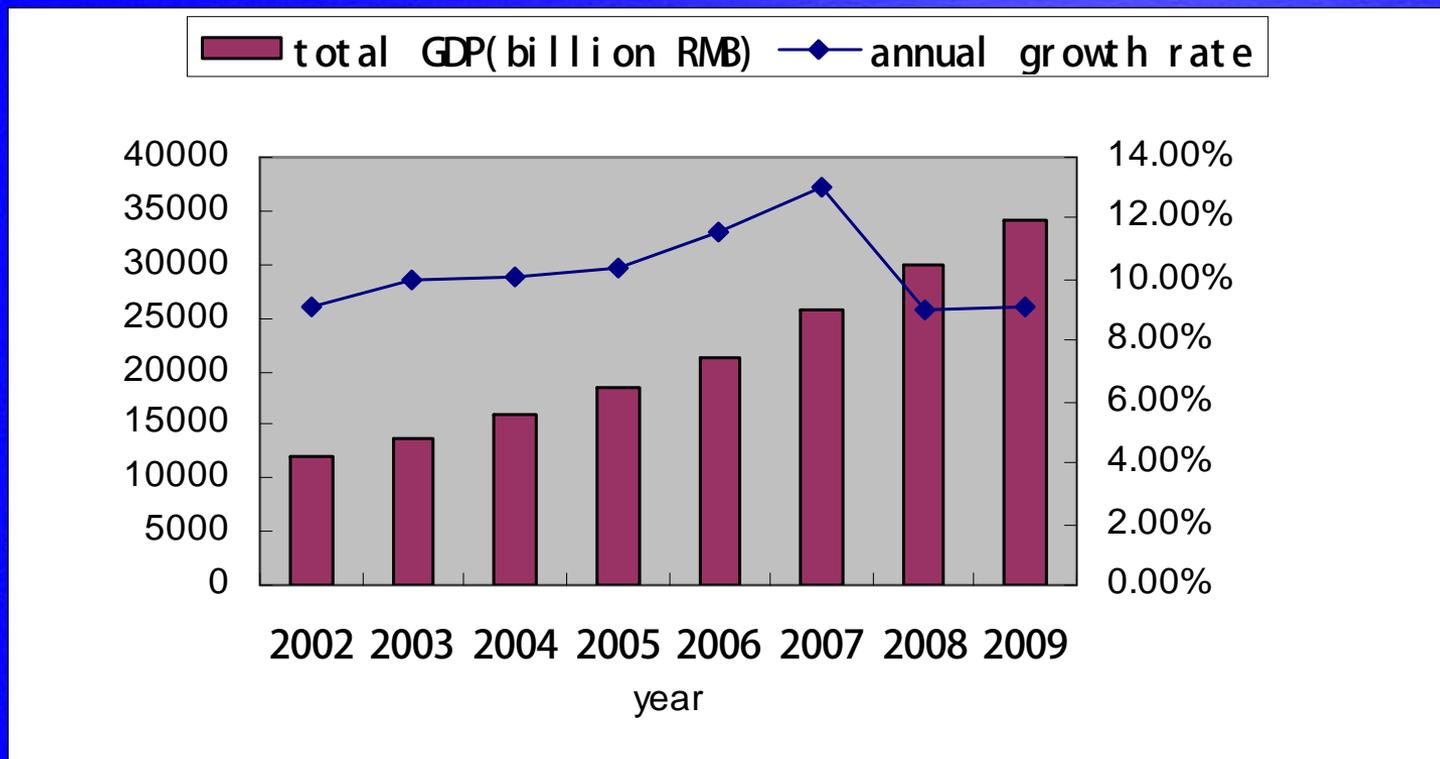
# Main Content

- Overview of China's Power Industry
- Development of Clean Energy in China
- Progress in Energy Conservation and Emission Reduction in China's Power Industry

# The Overview of China's Power Industry

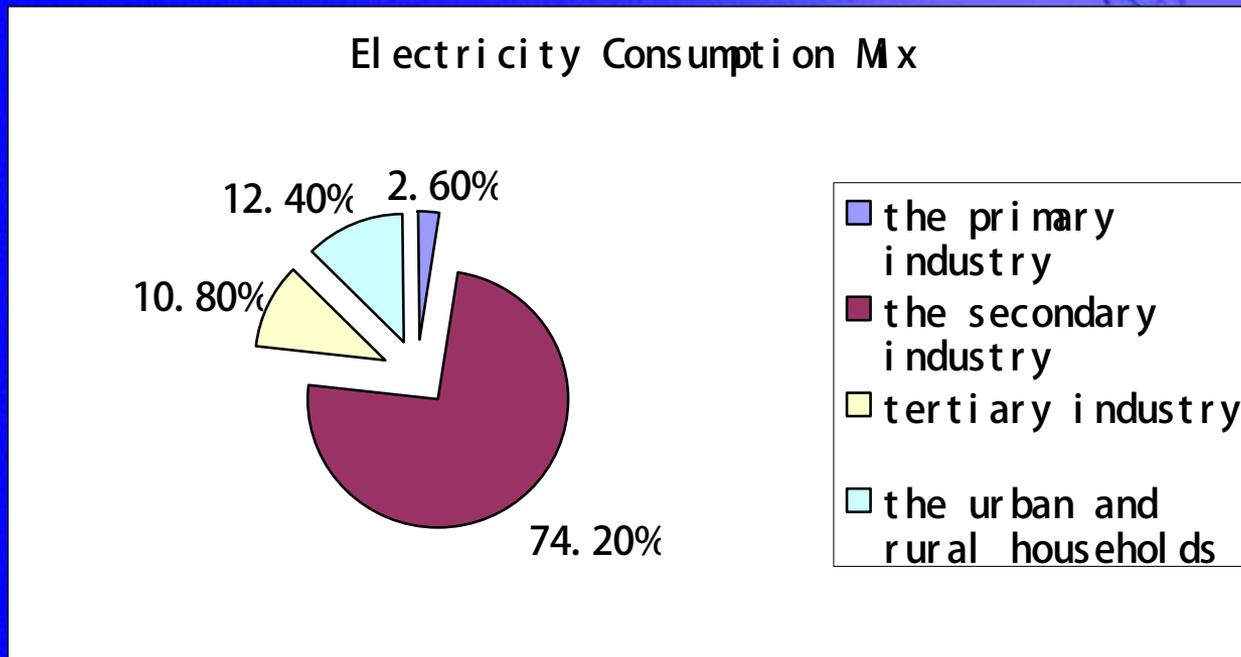
- Supply and demand of electricity grow fast
- Construction of power sector infrastructure continues to grow rapidly

# Gross Domestic Product of China (2002—2009)



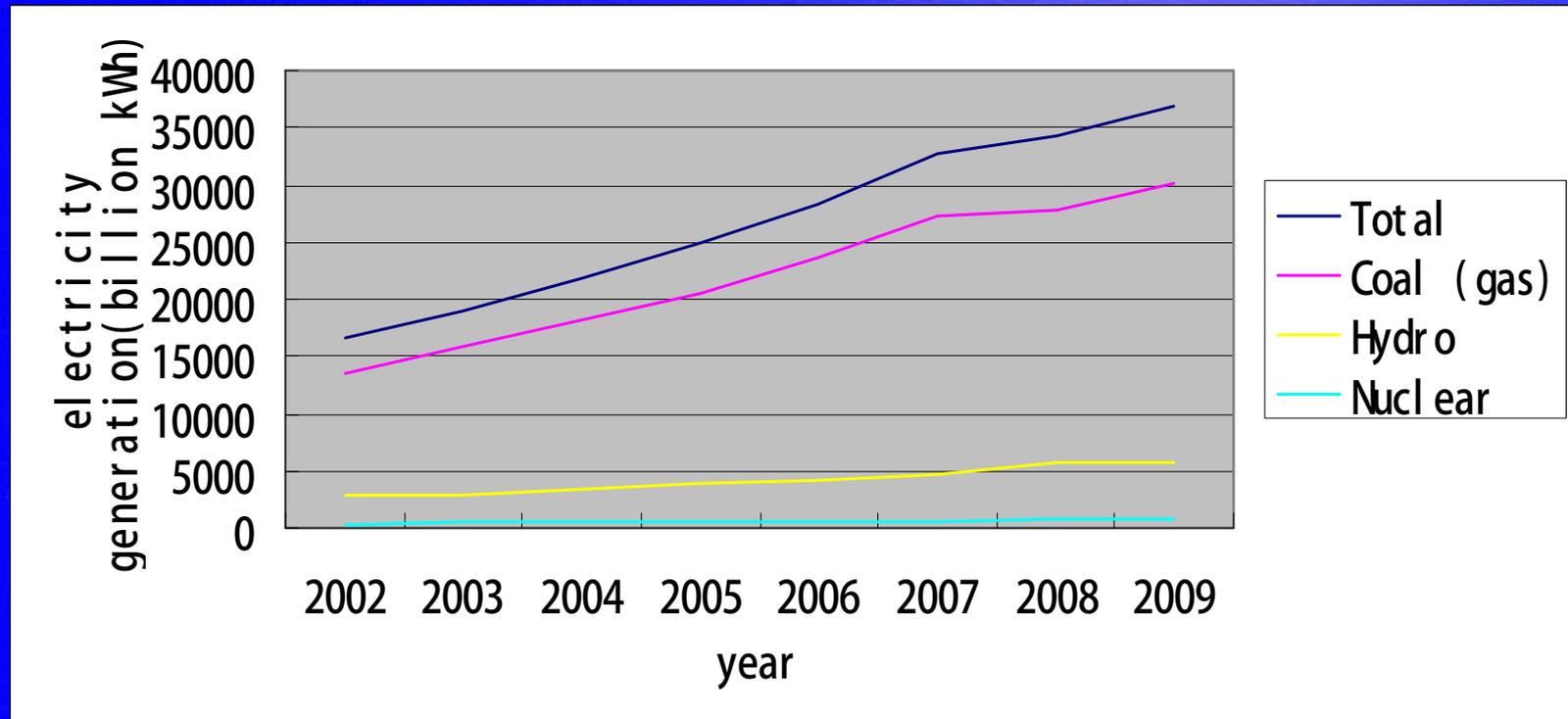
# The Overview of China's Power Industry

- Supply and demand of electricity grow fast
  - By the end of 2009, the total electricity consumption reached 3660 TWh, which grew by 6.44% over the previous year.



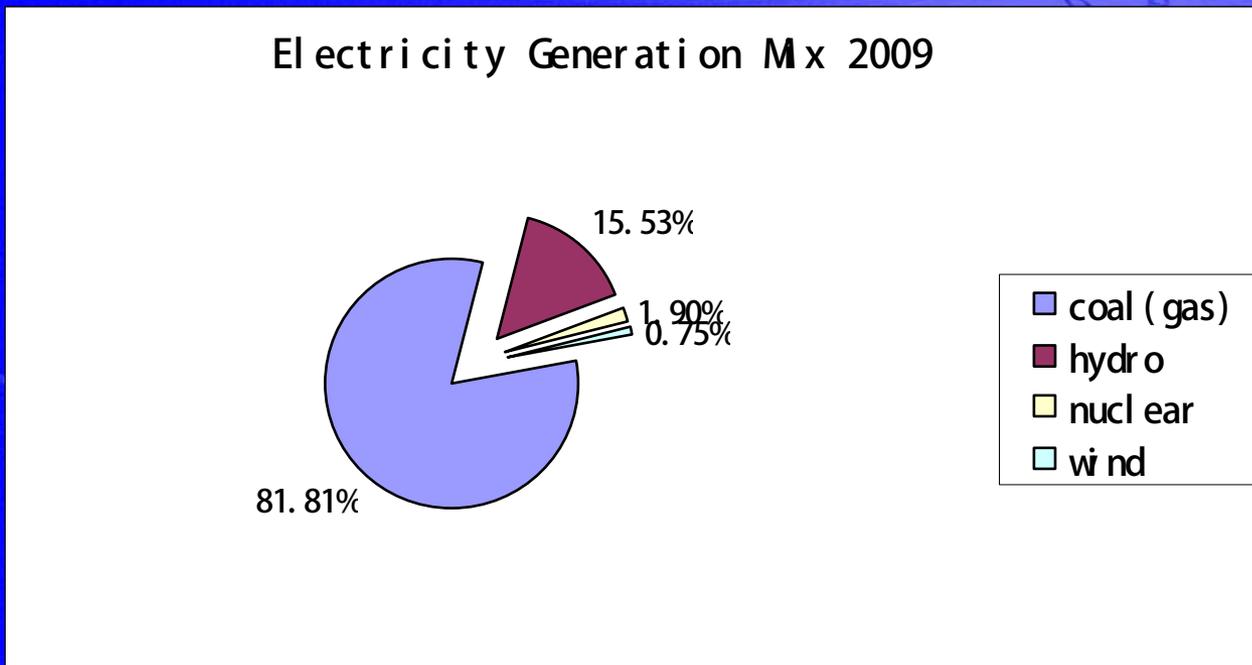
# The Overview of China's Power Industry

## ■ Electricity generation by fuel types in China



# The Overview of China's Power Industry

- Supply and demand of electricity grow fast
  - In 2009, the total amount of generation across the country was 3,680 TWh, which increased by 6.67% over last year.



# The Overview of China's Power Industry

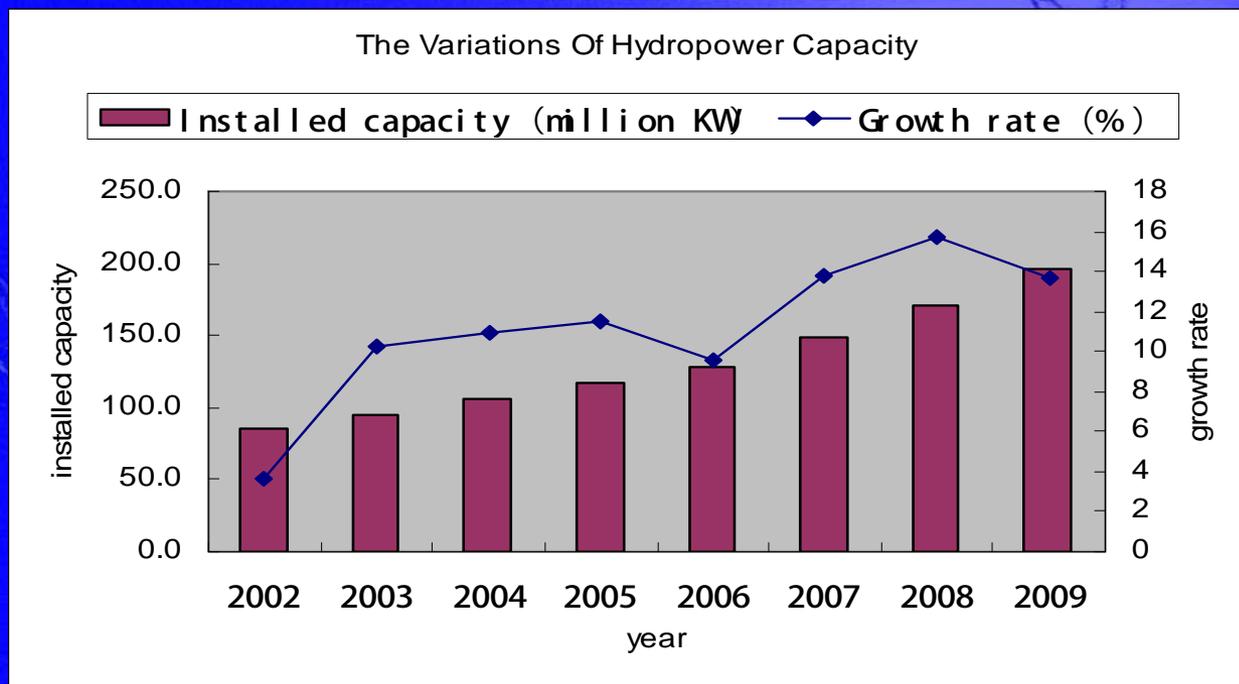
- Construction of power sector infrastructure continued to grow rapidly in 2009
  - total investment in power sector was RMB 770.16 billion , a increase of 22.2% over previous year
  - the investment in power sources development was RMB 380.33 billion, with a growth of 11.62% over previous year
  - the investment in power network construction was RMB 389.83 billion, with a year-on-year increase of 34.66%

# The Development of Clean Energy in China

- The development of renewable energy and new energy had been accelerated in 2009
- The structure of thermal power units had been optimized gradually in 2009

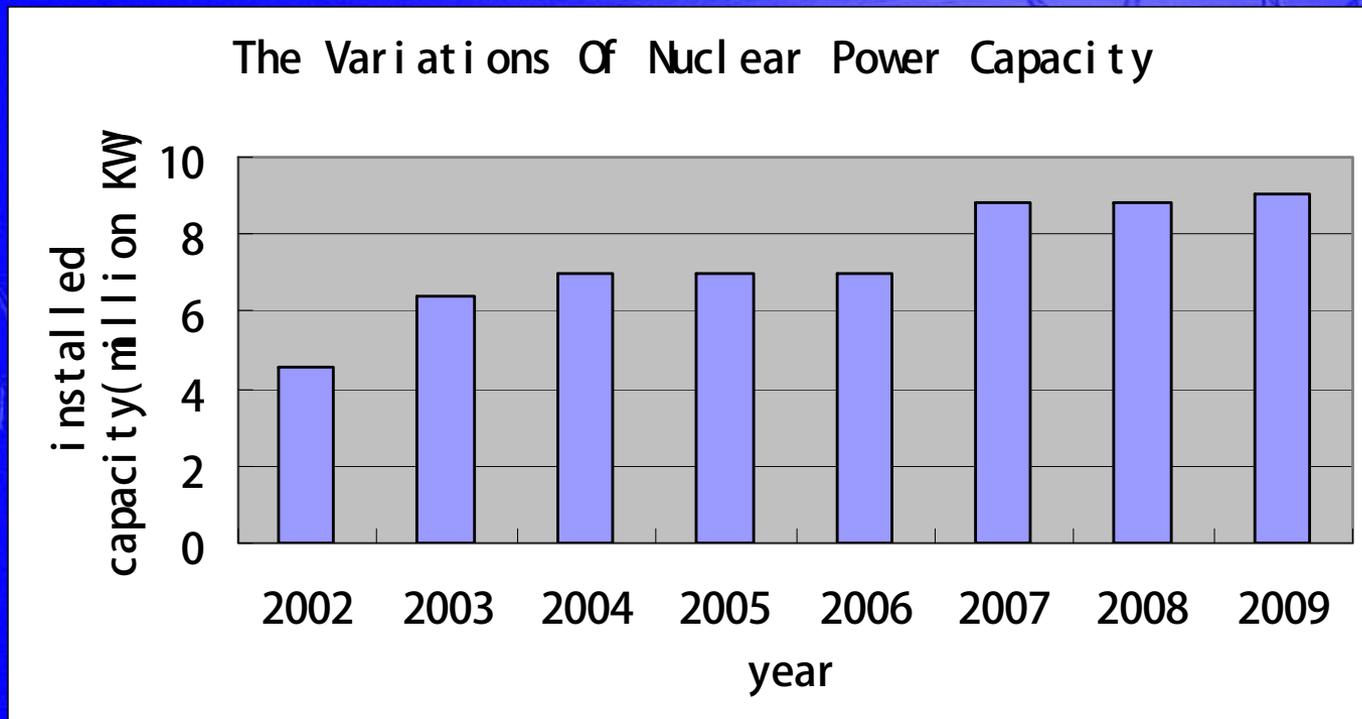
# The Development of Clean Energy in China

- The development of renewable energy and new energy had been accelerated in 2009



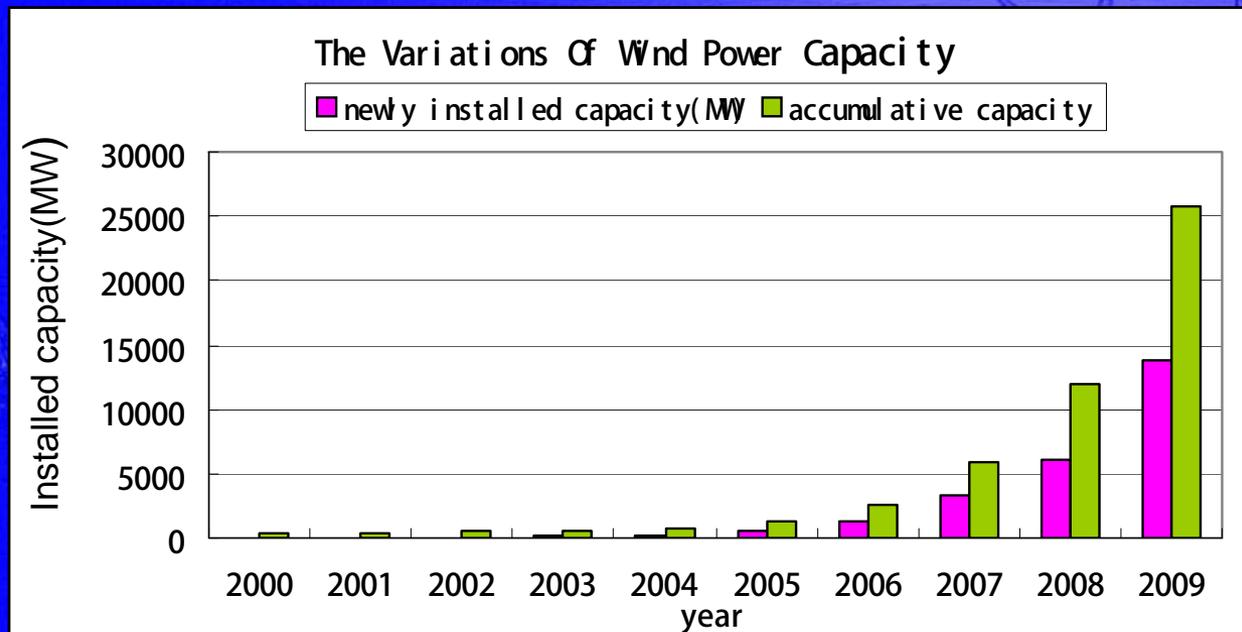
# The Development of Clean Energy in China

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# The Development of Clean Energy in China

- The development of renewable energy and new energy had been accelerated in 2009



# The Development of Clean Energy in China

- The structure of thermal power units had been optimized gradually
  - Newly installed thermal power units were large-capacity, highly efficient and environmental friendly ones
  - By the end of 2009, total 21 1-GW ultra-supercritical units were up and running, and 14 being under construction in China.
  - By the end of 2009, the thermal units of 300 MW and above accounted for 69% of the total installed thermal generation capacity; the thermal units of 600 MW and above accounted for 34% of the total installed thermal generation capacity.

# The Development of Clean Energy in China

- The related regulatory measures
  - Adjusting the economic policy
    - For example, increase the add-ons in the retail tariff for renewable energy
  - Regulating the purchase of the renewable energy
    - “Renewable Energy Law” requires power grid companies must purchase all the power produced by the renewable energy generators.

# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

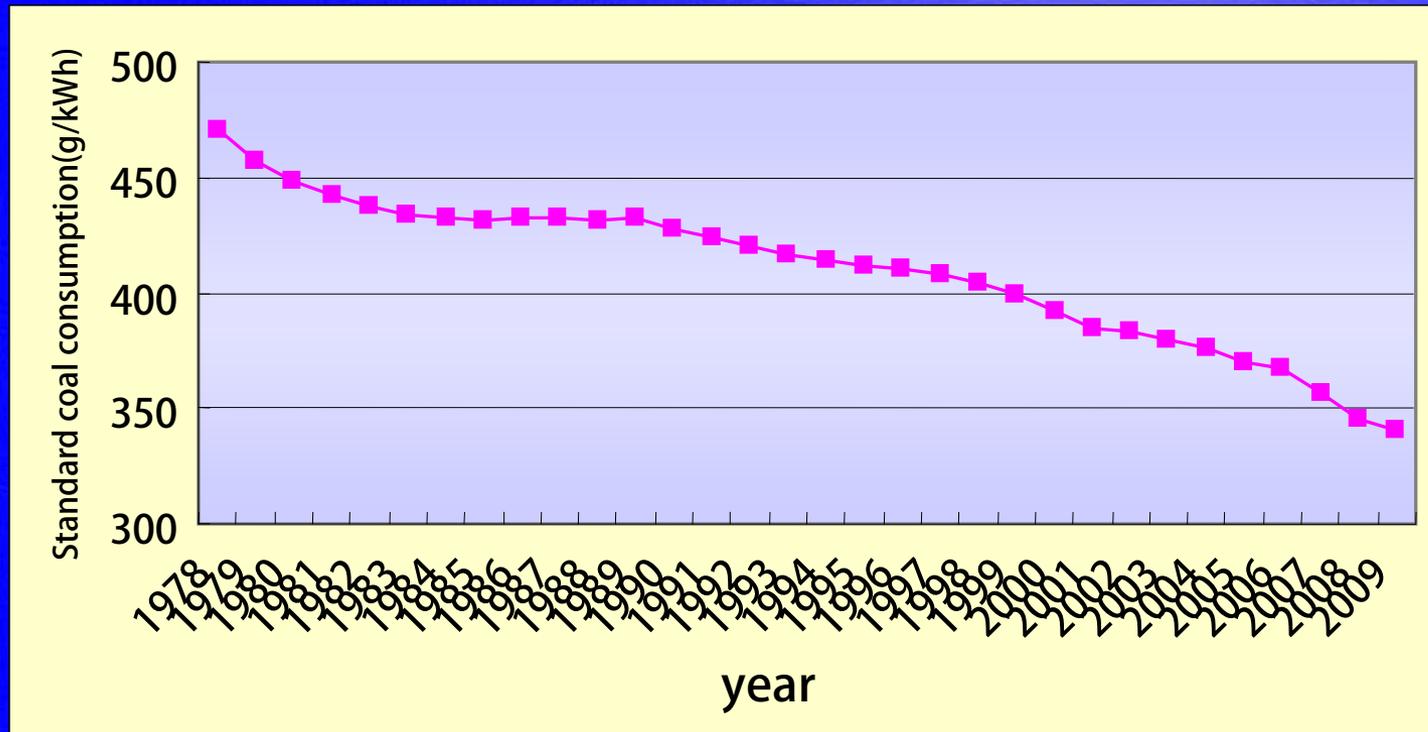
- Shut down small-sized thermal power units
- Coal consumption rate and network loss keep decreasing (three indexes)
  - The standard coal consumption rate of power supply
  - The service power consumption rate of power plants
  - The rate of network loss
- Improvement of sulfur dioxide emission reduction
- The regulatory measures

# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

- Shut down small-sized thermal power Units
  - 2007, 553 small thermal units with a total capacity of 14380 MW were shut down.
  - 2008, 3267 small thermal units with a total capacity of 16680 MW were shut down.
  - 2009, small thermal units of a total capacity of 26170 MW were shut down.
  - By the end of 15th July, 2010, another 468 small thermal units with a total capacity of 10710 MW had been shut down.

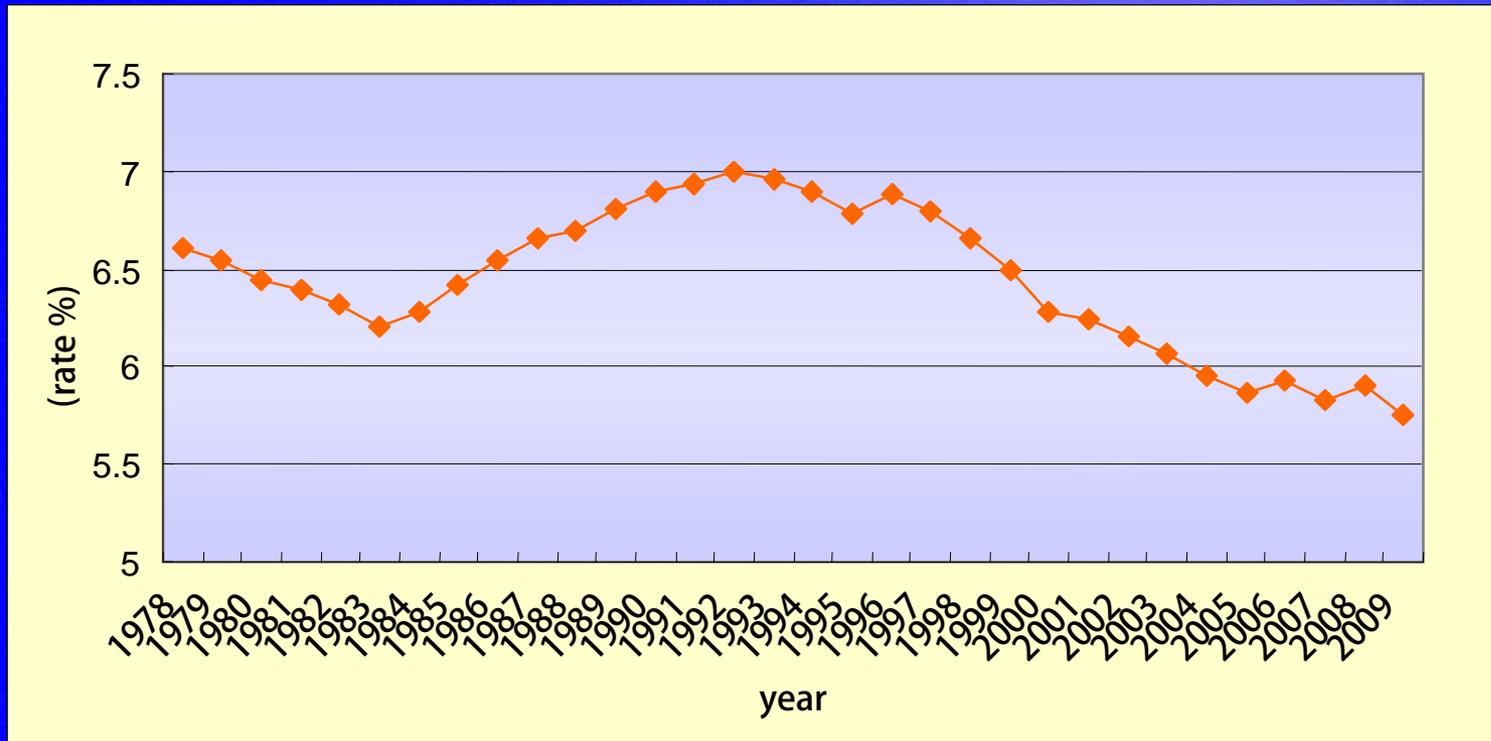
# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

- The standard coal consumption rate of power supply keeps decreasing



# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

- The service power consumption rate of power plants keeps decreasing



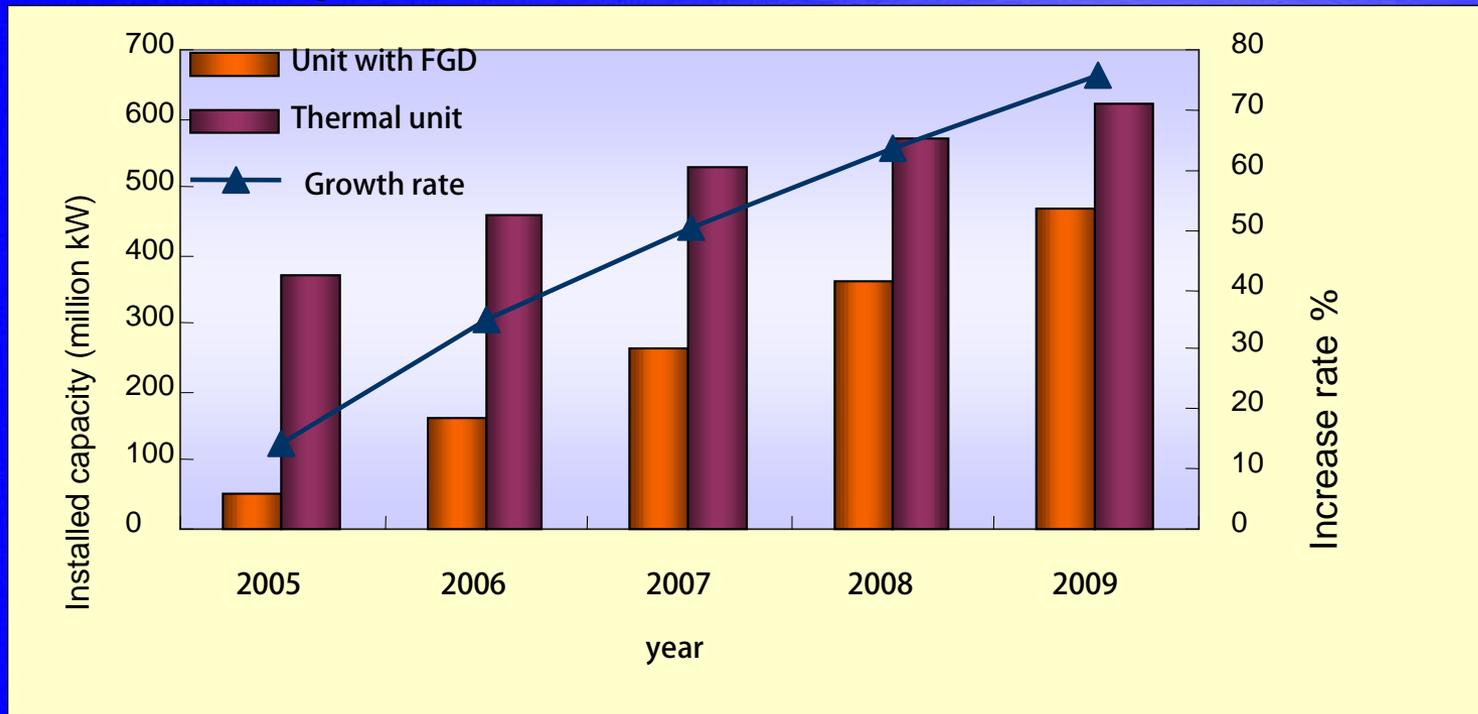
# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

- The rate of network loss keeps decreasing



# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

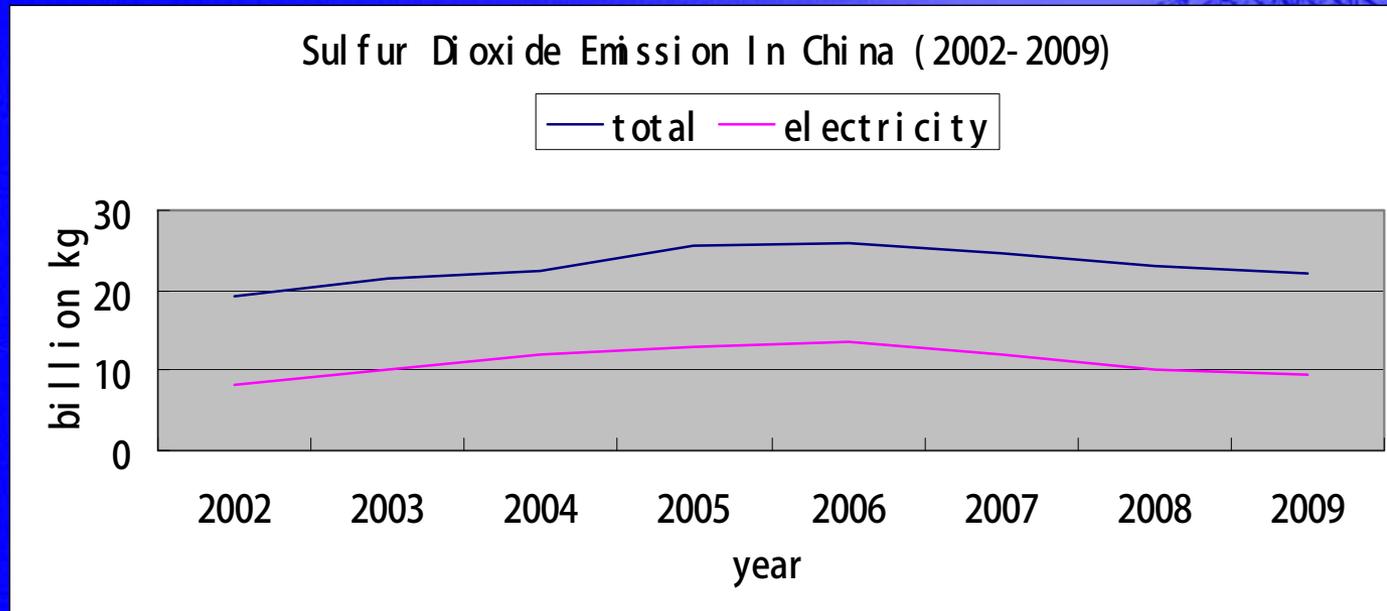
- Improvement of Sulfur Dioxide Emission Reduction
  - The capacity of the generation units with FGD equipments keeps increasing



# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

## ■ Improvement of Sulfur Dioxide Emission Reduction

- The emission of sulfur dioxide kept decreasing in recent years



# The Progress in Energy Conservation and Emission Reduction in China's Power Industry

## ■ The regulatory measures

- First, to promote the generation right trading across the country.
- Second, to implement the energy-saving dispatch (ESD)
- Third, to improve the economic policies related to energy-saving and emission reduction.
- Fourth, to keep monitoring and supervising the FGD equipments operation of the thermal power plants.

# Thanks!