Prioritizing Energy Conservation, Developing Cyclic Economy, and Building Conservation-Minded Society

-- China's correct choice for the reduction of greenhouse gas emissions

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Overview

- Kyoto Protocol
- China’s contributions to the battle against global climate change
- China’s challenges and opportunities
- China’s energy development strategy focused on conservation
- Post-Kyoto: what should we do?

Kyoto Protocol

The Kyoto Protocol took effect in February this year, marking a substantial step forward towards reducing global greenhouse gases. It was the result of joint efforts made by many countries in the world over the past 10 years after the U.N. Framework Convention on Climate Change came into force in March 1994.

China's Contributions

- China has made great contributions to the battle against global climate change.
- From 1978 to 2004, China saved more than 900 million tce, or 50% of the energy needed to power its GDP growth averaging 9.4% during this period.

China's Contributions

- From 1978 to 2004, China reduced energy consumption per unit of output value by improving energy efficiency from 26% to 33%.
- From 1981 to 2000, it cut down on CO_2 emissions by nearly 600 million tons.

China's Contributions

- In recent years, China has taken the following measures in the global war on climate change.
- In 2002, the Ministry of Science and Technology published its 2001-2010 Program for Sustainable Development of Science and Technology, initiated the compilation of the National Assessment Report on Climate Change, and launched China Climate Change Info Net.

China's Contributions

- In 2003, based on China's Agenda 21 -- White Paper on China's Population, Environment, and Development in the 21st Century published in 1994, the government promulgated the Program of Action for Sustainable Development in China in the Early 21st Century.

China's Contributions

- In 2004, China formally submitted The People's Republic of China Initial National Communication on Climate Change to the Conference of the Parties to the Convention.
- In 2004, it implemented the Interim Measures for Operation and Management of Clean Development Mechanism Projects in China. So far, two CDM projects have been approved in the country.

China's Contributions

- In 2004, the government published the China Medium- and Long-term Energy Conservation Plan. It has adopted a national energy development strategy aimed at optimizing energy conservation, improving energy structure, diversifying energy sources, strengthening environmental protection, and advancing technology and innovation.

China's Contributions

- In 2005, China passed the Renewable Energy Law to promote the development of such new or renewable energy as wind power, solar energy, geothermal power, and biomass energy.

China's Contributions

- Currently, the government is drafting a national strategy tackling the impact of climate change in line with the principles embodied in the Convention.

China's Challenges and Opportunities

- Mounting energy demand and greenhouse Emission.

  As China continues its road to sustainable and rapid growth, both energy use and resultant greenhouse gas emissions tend to increase in the future.

- By 2020, China will have built a well-off society with its GDP quadrupled compared with 2000.
- By 2050, it will have become a nation with people's living standards comparable to those of a mid-level developed country.

China's Challenges and Opportunities

- From 2000 to 2020, rapid growth in heavy chemical industry and transportation means hiking energy needs.
- Urbanization leads to more energy consumption due to rising demand for air conditioners and cars.

China's Challenges and Opportunities

- If the economy continues to grow with this pattern without switching to an intensive growth mode, domestic energy resources and solutions alone will no longer be able to support it. Even with the use of some foreign energy resources, it will still be difficult to sustain.

China's Challenges and Opportunities

Year 2004

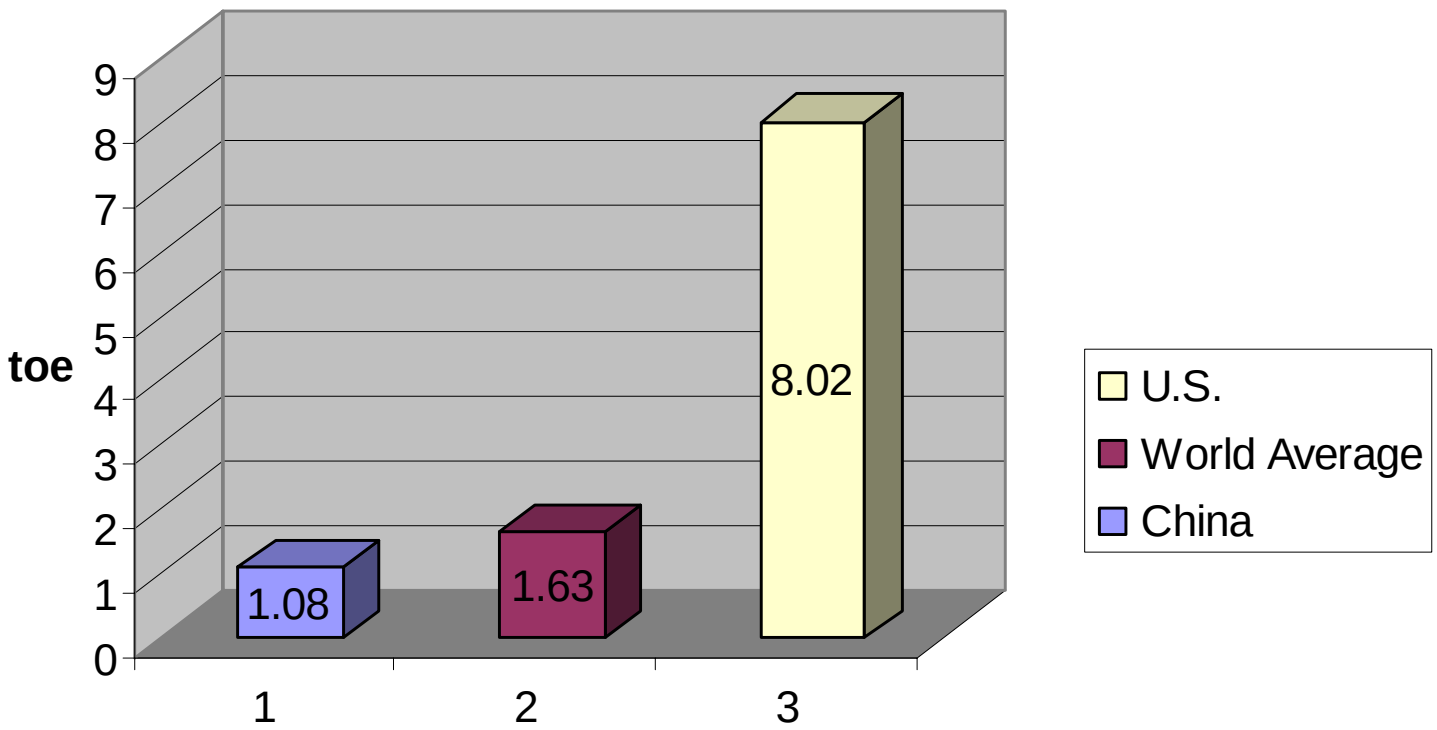
Extensive growth mode: high investment, high consumption, and high pollution experienced

Net crude oil import	Primary energy production	Energy consumption
117 mln tons (40% of oil needs)	1.845 bln tce (2nd largest in the world)	1.97 bln tce (2nd largest in the world)

China's Challenges and Opportunities

- China's exploitable energy reserve per capita stands far below the world average. As of the end of 2002, proven reserves of coal, oil, and natural gas per capita were about 60%, 8.4%, and 5% of the world average, respectively.
- China's average primary energy consumption per capita was low.

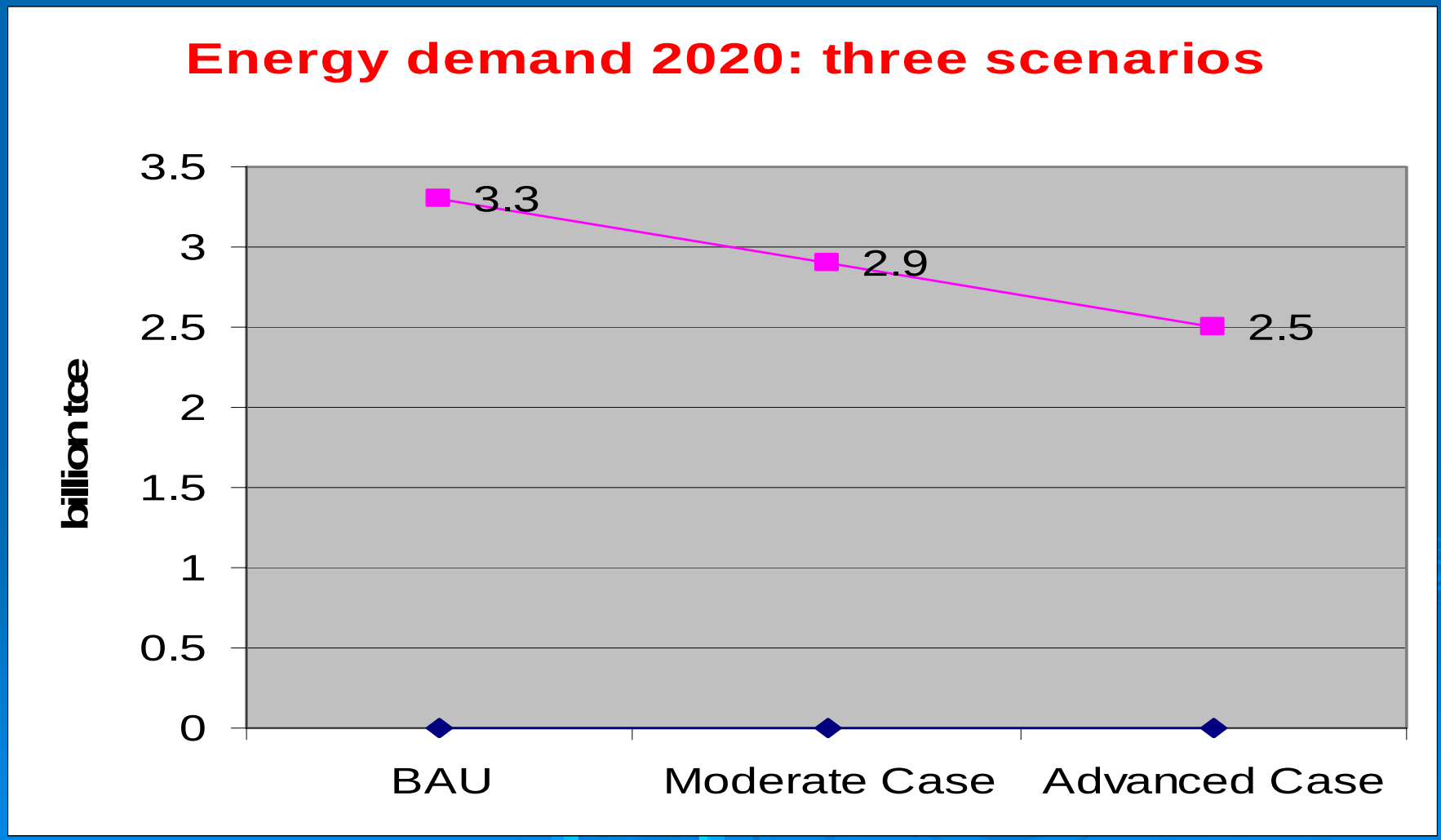
China's Challenges and Opportunities



China's Challenges and Opportunities

- How much energy in needed to achieve China's goals of social and economic development? Chinese analysts have designed three energy demand scenarios for 2020: a business-as-usual(BAU) and two major alternative scenarios.

China's Challenges and Opportunities



China's Challenges and Opportunities

- In any case, China's energy needs are likely to more than double in two decades from the 2000 level. As the trend of the soaring demand for coal as the major source of energy continues, heavier atmospheric concentrations of greenhouse gases will be produced.

China's Challenges and Opportunities

Coal will remain the leading source of energy by 2020			
Type of energy	Coal	Oil	Natural gas
Primary energy consumption	60-63%	25.9-26.7%	6.7-8.9%

China's Challenges and Opportunities

- **Transform growth mode and boost a cyclic economy**
  - the 3R concept: Reduce, Reuse, and Recycle.
  - Create a conservation-oriented growth pattern featuring low investment, low consumption, and high efficiency.

China's Challenges and Opportunities

- **Change energy consumption pattern and build conservation-conscious society**

China is poor in natural resources per capita. Thus, it is very important for the country to build a conservation-oriented society and improve its consumption structure by fully introducing and promoting resources-saving technologies and products.

China's energy development strategy focused on conservation

- **Hold to energy development strategy focused on conservation in the draft of the Medium- and Long-term Energy Development Program.**

China's sustainable energy development strategy aims to prioritize conservation, improve efficiency, diversify structure, protect environment, and promote market. Specifically, the draft of the Medium- and Long-term Energy Development Program (2004-2020) approved in principle by the Chinese Cabinet in June last year urges efforts to be made in the following areas.

China's energy development strategy focused on conservation

- Make energy conservation the top priority.
- Adjust and optimize energy structure.
- Work for a rational geographic distribution of energy development projects taking into account the needs of all areas.
- Fully tap both domestic and overseas resources and markets.
- Rely on scientific and technological progress and innovation.

China's energy development strategy focused on conservation

- Strengthen environmental protection and strive to reduce the impact of energy use on the environment.
- Improve energy security pre-warning and rapid response mechanism.
- Institute safeguard measures for energy development.

China's energy development strategy focused on conservation

Energy conservation is the top priority

Last year, the Chinese government has formulated "China Medium- and Long-term Energy Conservation Plan", including energy saving objectives, projects, and measures. Specifically, they are --

China's energy development strategy focused on conservation

Target (1)

Macro indicators (constant price in 1990)

Energy use	By 2010
Energy use per 10,000 Yuan (RMB) GDP	2.25 tce
Annual average energy conservation rate(2003-2010)	2.2%
Total nation's energy conservation capacity	400 mln tce

China's energy development strategy focused on conservation

Target (2)

Macro indicators (constant price in 1990)

Energy use	By 2020
Energy use per 10,000 Yuan (RMB) GDP	1.54 tce
Annual average energy conservation rate(2003-2020)	3%
Total nation's energy conservation capacity	1.4 bln tce

China’s energy development strategy focused on conservation

Key sectors/industries of energy conservation

-- Power electricity
-- Iron & steel
-- Nonferrous metals
-- Oil & petrochemical
-- Chemical
-- Building material
-- Coal

China's energy development strategy focused on conservation

Key sectors/industries of energy conservation (cont'd)

-- Machinery

-- Transportation

-- Construction

-- Commercial and residential buildings.

China’s energy development strategy focused on conservation

Ten key projects

1. Coal-burning industrial boiler (kiln) retrofit;
2. District cogeneration;
3. Residual heat and pressure utilization;
4. Petroleum saving and substituting;
5. Motor system energy saving;
6. Energy system optimization;

China's energy development strategy focused on conservation

Ten key projects (cont'd)

7. Building energy conservation;
8. Green lighting;
9. Government agency energy conservation; and
10. Energy saving monitoring and testing, and technology service system building.

China's energy development strategy focused on conservation

Ten implementation measures

1. Adhere to and implement the guideline of giving priority to energy conservation;
2. Formulate and implement unified and harmonized energy and environment policies to promote energy conservation;
3. Formulate and implement industrial policies to facilitate structure adjustment;
4. Formulate and implement incentive policies to intensify energy conservation;
5. Strengthen energy conservation management according to laws;

China's energy development strategy focused on conservation

Ten implementation measures (cont'd)

6. Accelerate the development, demonstration and promotion of energy conservation technology;
7. Promote a new market-based energy conservation mechanism;
8. Reinforce energy conservation regulations on key energy consuming units;
9. Intensify promotion, education and training of energy conservation; and
10. Enhance organization and leadership, and promote program implementation.

China's energy development strategy focused on conservation

- **Diversify energy structure**

  China has been trying to gradually reduce the proportion of coal in the nation's primary energy consumption. Coal use decreased from 76.2% in 1990 to 67.7% in 2004 and is expected to stabilize at around 60% by 2020.

China's energy development strategy focused on conservation

Energy structure in 2020 (coal: 60%)	
Crude oil production	180-200 mln tons
Natural gas demand	160 bln m^3
Hydropower	200-240 mln kW
Nuclear power	40 mln kW
Renewable energy	525 mln tce

China's energy development strategy focused on conservation

- **Develop environment-friendly economy**

  As the emissions of CO_2 are set to be limited, marginal costs of its reduction will go up. Higher economic input due to the limits set on greenhouse gas emissions will force China to rethink its energy strategy.

Post-Kyoto: what should we do?

What should we do post Kyoto ? I believe the following six areas should be considered when we contemplate our post-Kyoto step.

1, Correctly handle the relationship among economy, society, energy and environment for both developed and developing countries.

Developing nations need to concentrate on developing economy and eradicating poverty.

Post-Kyoto: what should we do?

2, Correctly handle the relationship between developing economy and cutting emissions of greenhouse gases.

Developed countries are obliged to limit emissions continually.

Developing countries should continue to carry out the principle of

"common but differentiated responsibilities".

Post-Kyoto: what should we do?

3, Rich countries should take concrete actions to provide more assistance to developing nations in terms of technology, funding, and capacity building.

Post-Kyoto: what should we do?

4, Recognize the importance of technology development and transfer from a high-strategic altitude.

Developed countries should act to help set up more international cooperation mechanisms suited to the national conditions of different countries.

Post-Kyoto: what should we do?

5, Keep the balance between adaptation to and mitigation of climate change.

Adaptation and mitigation are two indispensable wheels for the convention to go forward and both are important.

The post-Kyoto negotiation process on the adaptation should be accelerated to help improve developing countries' capabilities to fight climate change.

Post-Kyoto: what should we do?

6, Make efforts to expand people's knowledge of climate change through education and strengthen our research in this field.

Thank you ☺

Thank you!