



Power Sector Reform in PRC: development and challenges

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Outline

- ✦ Review of PRC's Power Sector
- ✦ Reform Progress of Power Sector
- ✦ Reform Effects
- ✦ Reform Challenges
- ✦ Reform Tasks in the Future

1. Review of PRC's Power Sector

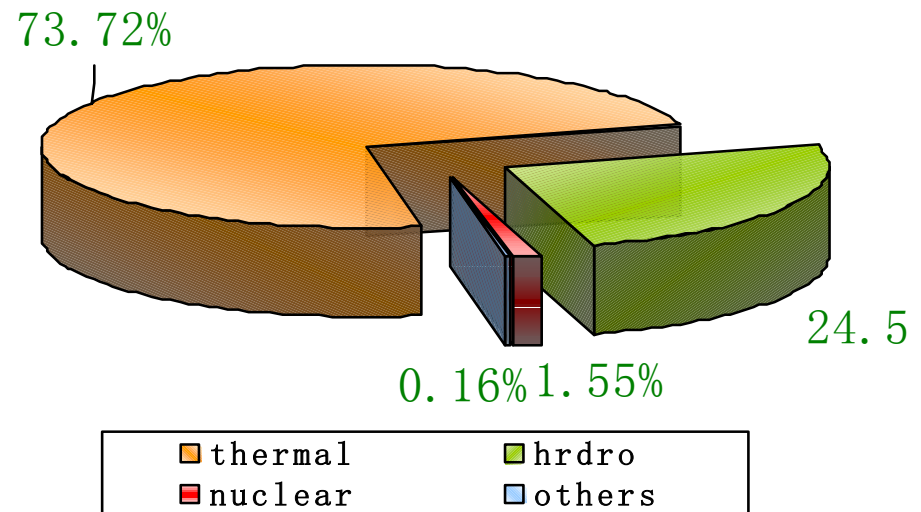
- Sector scale and composition
- Ownership structure of enterprises
- Power market structure

Sector scale and composition

- By the end of 2004, the total installed capacity was 440,707 MW

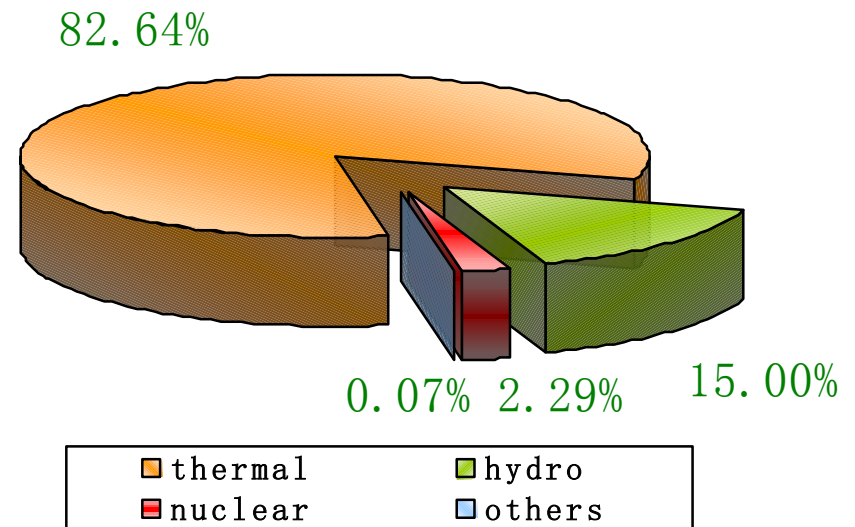
- Of which:

- thermal power 324900 MW
- hydropower 108260 MW
- nuclear power 6840 MW
- others 700 MW



Sector scale and composition

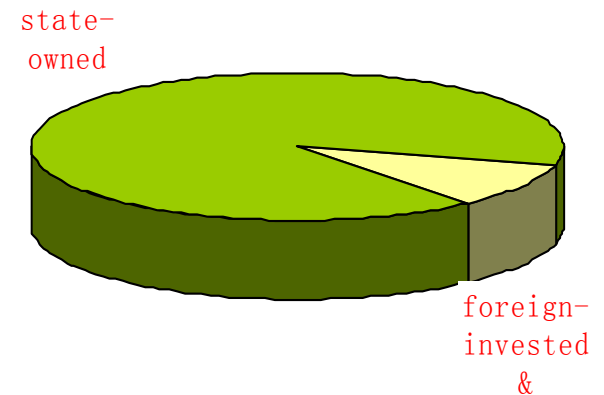
- By the end of 2004, the total power output of the country was 2,187 billion kWh
- of which:
 - thermal power 1807.3 bil kWh
 - hydro power 328 bil kWh
 - nuclear power 50.1 bil kWh
 - others 1.6 bil kWh



Ownership structure

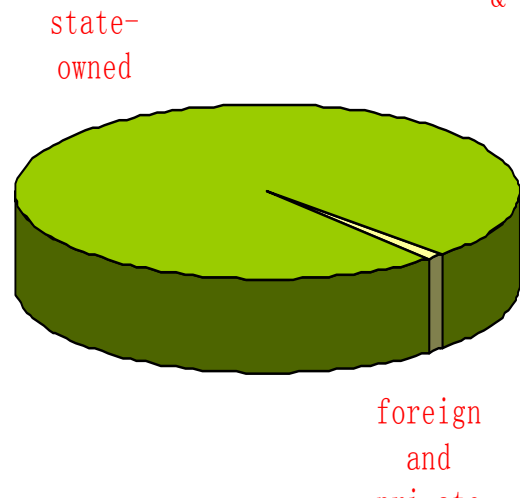
Generation

- **State-owned - accounts for 90%**
- **Foreign-investors & private - 10%**



Grid

- **State-owned - 99%**
- **Foreign-investors & private - 1%**

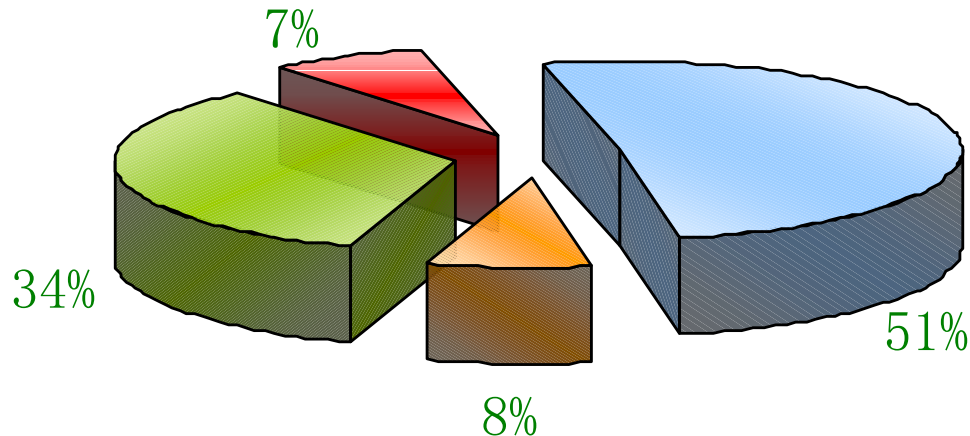


Ownership structure

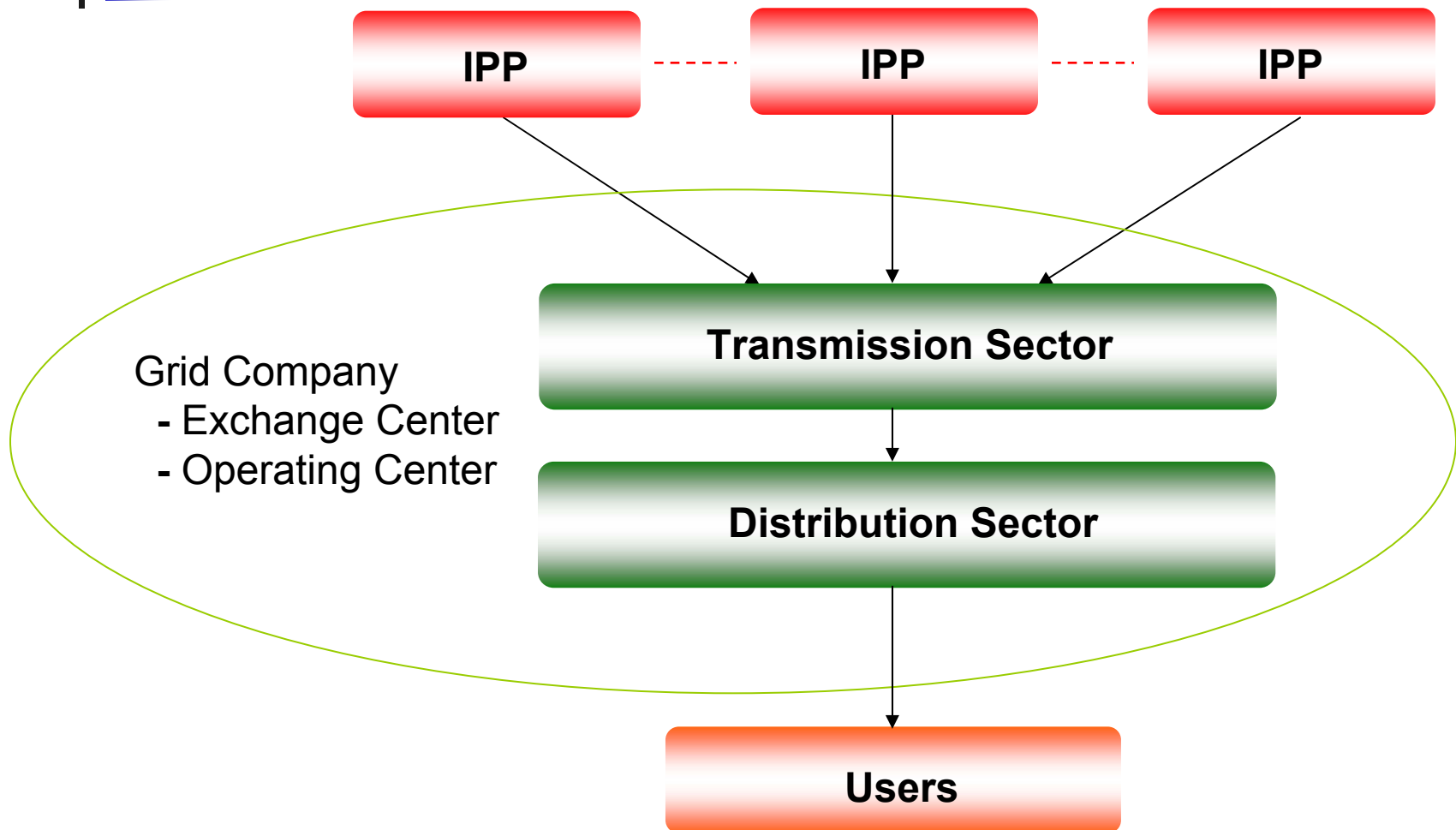
- State-owned companies

- Generation

- grid companies 34000 MW
- 5 generation co. 149550 MW
- SH、CYPC、SDIC、CGNPC 33000 MW
- local public-owned, etc. 224150 MW



Structural reform of power market



Structural reform of power market: transmission

- By end of 2004 there were 222,994 km transmission lines of 220KV, with an increment of 25,841 km compared with that of 2003

- Transmission Corps

2 regional grid Corps: State Grid Corporation /China Southern Power Grid Corporation

High-voltage transmission networks state-owned

Low-voltage distribution networks more than 80% is state - owned

5 regional grid companies under SGC were established, and an independent provincial grid company was entrusted to SGC.



Power market structure: power supply

- In 2004, the total electricity consumption was 1,741.352 bil KWh
- Number of consumers: 231,699,894



2. Reform progress of the Power Sector in PRC

- Background
- Main reform content
- Executive process



Background

- **1949—1985:** the roles of government and enterprises overlapped under the traditional industrial organization, and the centralization and monopoly in the sector have led to a long-term power shortage;
- **1985—1997:** with the development of power market and introduction of IPP, the power industry entered into a period of rapid growth
- **1997—2000:** following the separation of government functions from enterprise businesses, experiments of “bidding for generation get-on-net” at 6 selected provinces or cities was carried out



Three aspects of reform

- Distinguish between monopoly activities and competitive activities, restructure the sector assets, and form competitive entities in the market;
- Establish regional power market, reform power tariffs, and implement a step-by-step bidding for rights of electricity generation;
- Transform the role of government, set up a regulatory system, and regulate an orderly market system

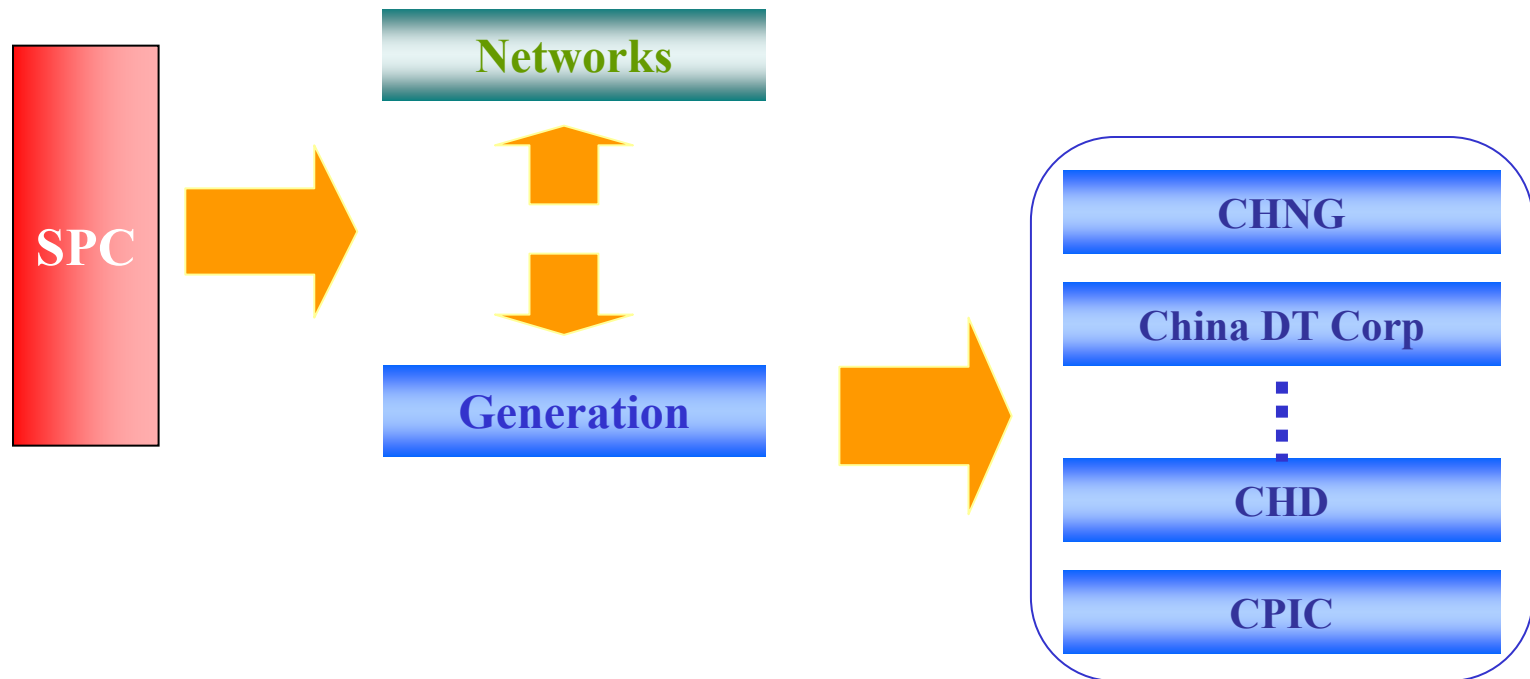
Executive steps of reform

SERC

Separate generation from wires and reorganize the former SPC	<p>On Dec. 29, 2002, 11 new power Corps were officially established. The former SPC was unbundled into 5 national independent generation corps. State Grid Corporation and China Southern Power Grid Corporation were set up; The SPC's auxiliary businesses at state levels were divided into 4 group corps</p>
Experiment on establishing regional power markets at selected units	<p>On Jan 15, 2004 the simulation operation of northeast regional market commenced and trial operation is now under way On May 18, 2004, the simulation operation in east China market was started; The construction design of south market has come out, with its simulation operation expected in the second half of 2005 The preparation work for central China power market is ongoing , while construction of power market in north and northwest is now being considered</p>
Set New electricity tariff system	<p>In July 2003, the tariff reform framework plan came out In March, a new edition of tariff regulatory methods was published</p>
Establish special institutions for regulation	<p>In October 2002, the SERC was set up under the SC On Feb 24, 2003, the SC approved officially the formation of SERC as well as its duties and responsibilities. In Dec 2003, the SC granted SERC the responsibilities for monitoring power securities On Mar 20, 2004, the SERC was officially established. In April 2004, the Central Organization Office allowed SERC to establish branches based on vertical administration in 6 regions and 11 cities</p>
Create new legal framework	<p>"Power Regulations Act" became effective on May 1, 2005 Amendment on "Laws of Electric Power" is now in progress. Preparation of regulations on dispatch, power supply and use , as well as electric facilities protection, is now on foot</p>

(1) Separate generation from grid and reorganize the former SPC

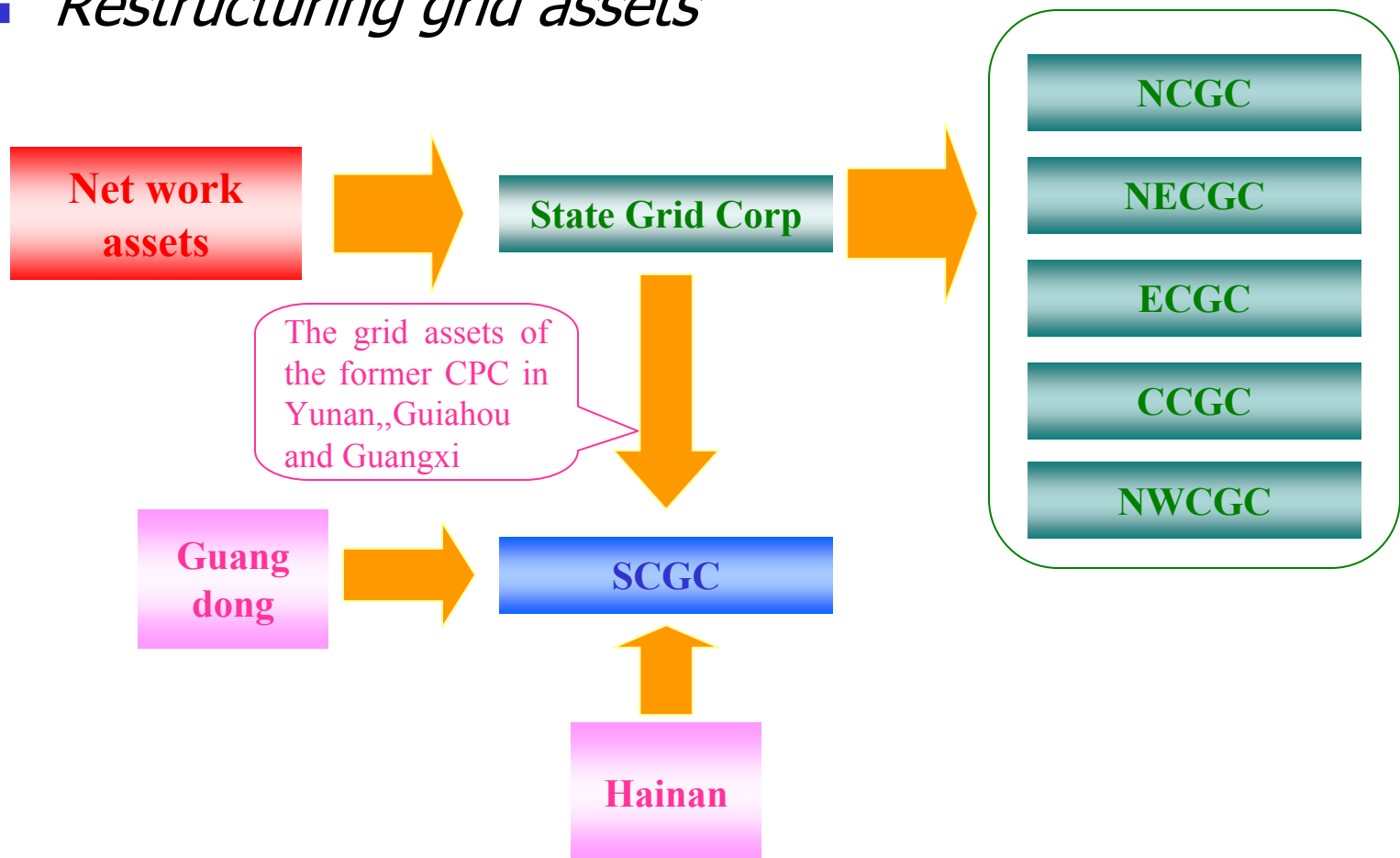
- *Restructuring generation assets*



- In 2002, the installed capacity under the central government was 201.79GW, accounting for 55 percent of the country's total capacity
- After separation, 5 generation corps of equal scale and assets were established with reasonable geographical distribution, while each of them accounting for no more than 20 percent of local capacity

Separate generation from grid and reorganize the former SPC –cont'd

- *Restructuring grid assets*



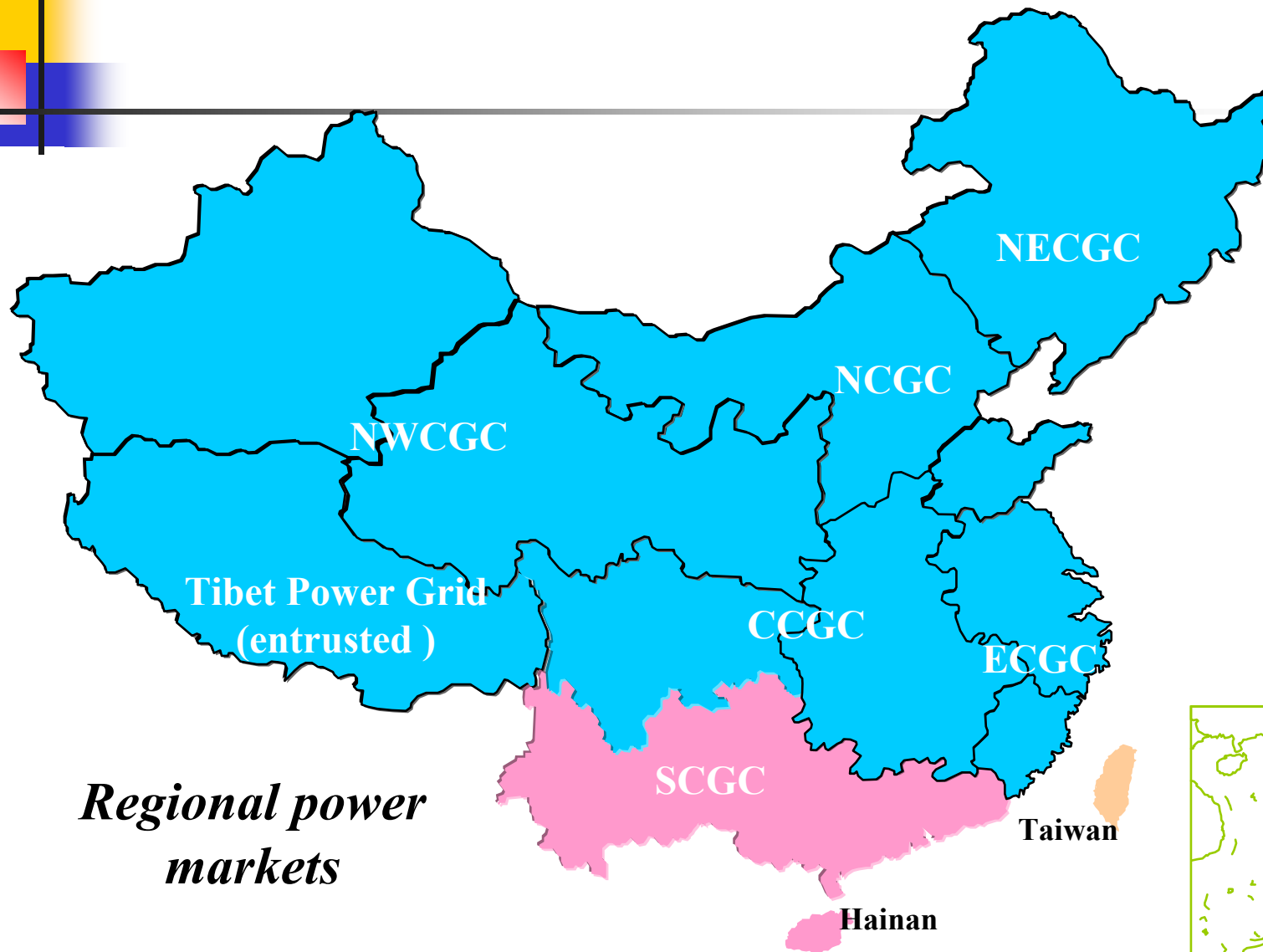


Separate generation from grid and reorganize the former SPC –cont'd

- *Restructuring other assets*
 - Design, construction and repair companies
 - Need to separate subsidiary functions from essential businesses
 - To restructure based on classification, regulate reorganization and introduce fair competition

(2) Experiment on establishing regional power markets at selected areas

SERC





Experiment on establishing regional power markets at selected areas –cont'd

The construction of regional power market is now moving forward steadily, which will provide a strong base for power resources allocation to be determined by market. At the same time, a pilot study on providing electricity directly to large consumers is actively at work. A pilot project of direct electricity trading between Jiljn Carbon Group and CHP Jinlin was formally started in Sept 2004. All these experimentations will lay a solid foundation for establishing a market system to allocate electric energy resources effectively.



(3) Introduce a new tariff system

Basic designs of tariff reform

- At generation level, implement bidding for get-on-net in phases, combining it with construction of regional power markets.
- At transmission level, set reasonable electricity tariff on the basis of regulated costs of T/D.
- At retail level, optimize retail tariff structure and achieve tariff's joint action between generation and retail
- Provide electricity directly to large consumers where the required conditions are satisfied



Introduce a new tariff system – cont'd

In July 2003, the State Council approved the Tariff Reform Program(No 62, 2003), which allows market to function.

In March 2005, according to this plan, a series of official issuances, including Generation Tariff Interim Measures, Retail Tariff Interim Measures, Transmission and Distribution Tariff Interim Measures, were made jointly by SERC and NDRC. These issuances have advanced the implementation of power reform.



(4) Establish special regulatory body

In Oct 2002, SERC was officially established by the State Council (98 persons) .

Since Feb 2003, SERC has begun to perform power regulation duties

In Dec 2003, the State Council empowered SERC to regulate the country's power securities (an increase of 28 persons)

In April 2004, the State Council allowed SERC to establish its branches based on vertical administration in 6 regions and 11 cities .

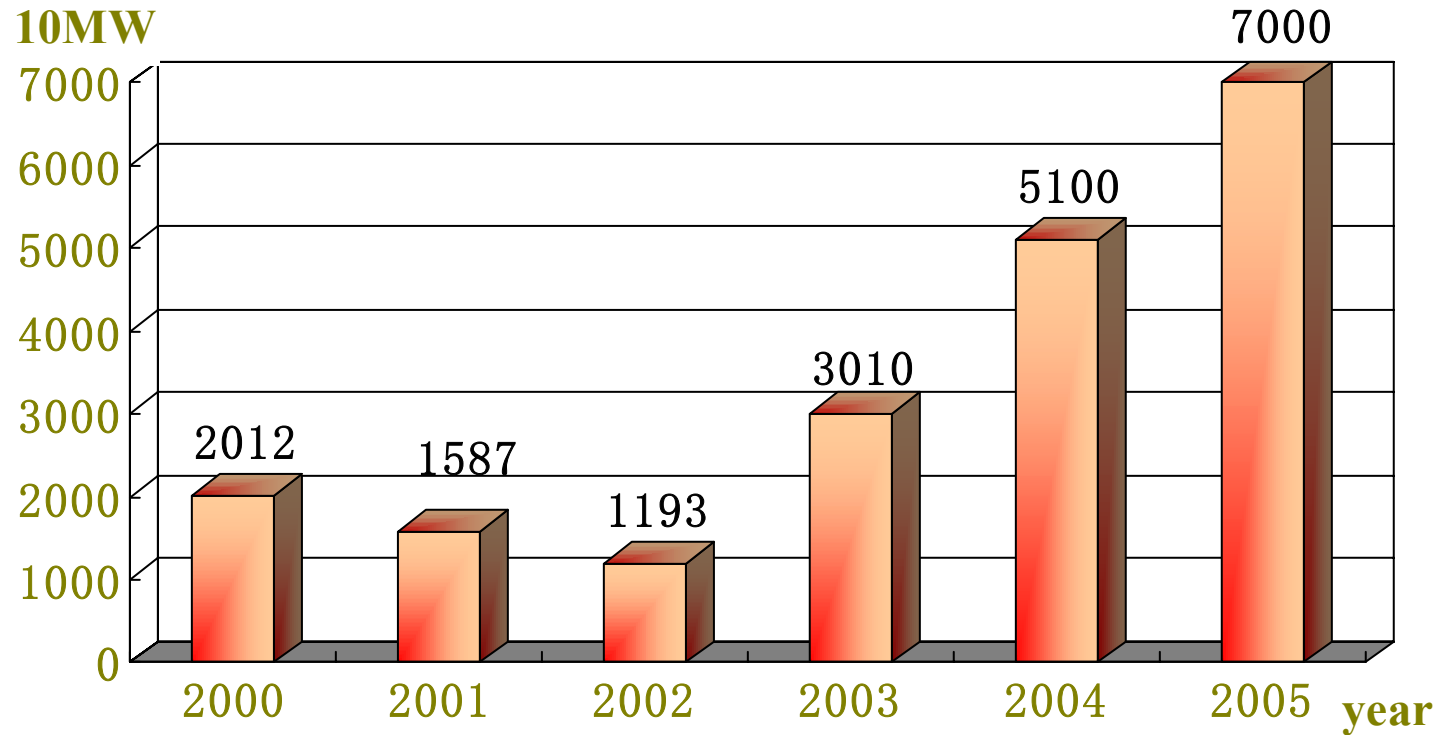
As of July 2005, 6 regional regulatory bureaus under SERC in addition to 2 provincial regulation offices in Zhejiang and Sichuan have been set up.



3. Reform Effects Assessment

- Introduced competition in generation to promote power supply construction
- Further improved services of the sector and expedited the construction of grid
- Expedited the state-owned enterprises reform and increased efficiency of the sector
- Improved the sector management to some extent

Introduce competition in generation to promote power supply construction



increment of capacity in the PRC 2000-2005



Introduce competition in generation to promote power supply construction

The sense of service of grid companies increased significantly. To provide high quality service is now regarded as one of the sector's main concerns; therefore, measures need to be made continually to set a sound sector mood and provide better services.

For the last 3 years, transmission lines of 220KV increased by 53,468km, and transformer capacity increased by 231.98 mil kVA. Line losses decreased from 7.52% to 6.95% which is the best record in history.



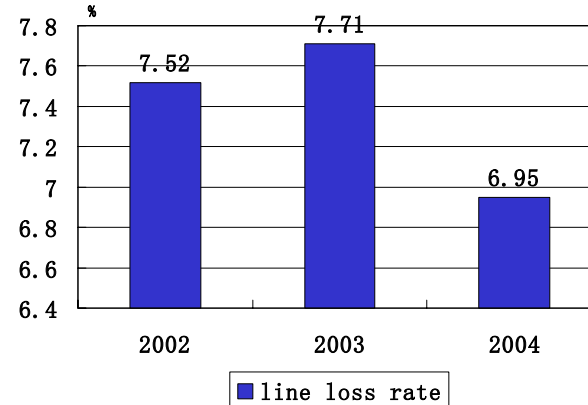
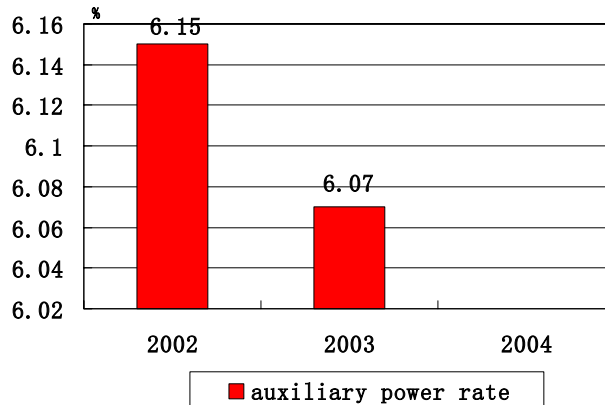
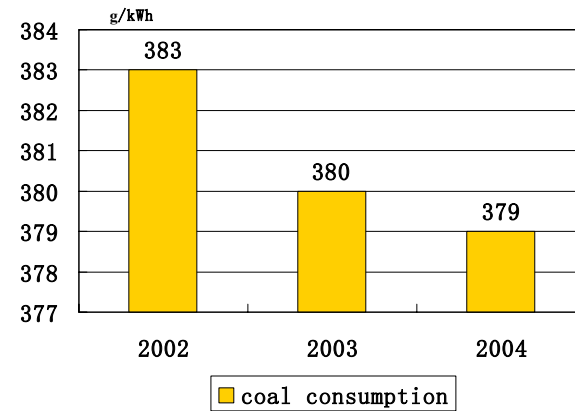
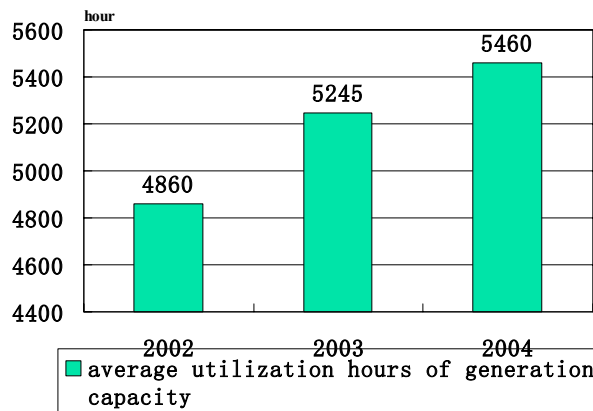
Further improve services and expedite grid construction

New generation companies have achieved significant progress in terms of building modern enterprise system, restructuring organization, and improving management within companies; hence, commercial performance of enterprises has greatly improved.

After 3 years of reform, the annual growth of total installed capacity and electricity output reached 9.19% and 13.8%, respectively. The coal consumption of generators decreased from 383g/kWh in 2002 to 355.97g/kWh in 2004. Despite the increase in prices of power equipment and materials in recent years, operation costs and fuel consumption have been controlled relatively well.

Speed up the state-owned enterprises reform and increase efficiency of the sector

SERC





Management in the sector has improved to some extent

Being compatible with the socialist market economy, the new management system, which requires that “government institutions take the responsibility of macro-controlling, regulator carry out regulation with law, enterprises conduct autonomous management and professional associations serve with self – discipline”, has been set up.

Some government macro-functions such as power planning has been strengthened, and approval system of power project has also been improved further so that administrative transparency is enhanced.



4. Power Reform Challenges

- Competitive markets are restrained
- A sector largely composed of state-owned companies brings complexity to regulation
- Uncertainties in reform lead to delays in implementing rules and regulations.



Restrained Competitive markets

- Transmission network is insufficient to support regional markets.
- Tariff differentials among provinces may lead to power shortage in poor regions.
- Power shortage may make “bidding for get-on-net” market model difficult to run
- There are some serious problems regarding market control.
- Cross-subsidies prevent market from opening to large consumers.



A sector largely composed of state-owned companies brings complexity to regulation

State-owned companies have both strong lobbying capability and political influence, bringing great difficulties to regulators.



Uncertainties in reform lead to delays in implementing rules and regulations

Being a fundamental guideline for power reform, the Document No.5 is no more than an outline of strategies and principles. For lack of a detailed implementation program, agreements and coordination have not yet been reached among all quarters on how to push the reform forward. Furthermore, some interested parties merely wait and see. Consequently, both reform progress and work on regulations are slowing down.

5. Main tasks of future power reform

- Regulate market players
- Perfect market mechanism
- Improve regulatory system



Regulate market players

- Continue to deepen the reform of generation companies, shape qualified market entities
- Promote restructuring and reshuffling of grid companies
- Separate DISCOs' wire businesses from their auxiliary businesses, actively and steadily.



Perfect Market Mechanism

- Strengthen the regional power market;
- Expedite reform of approval system
- Implement tariff reform
- Separate financial accounts of transmission and distribution
- Study how to promote reform process for DISCOs
- Carry out trial operation on direct power supply to large customers。



Make regulatory system effective

- Further straighten out power regulation system
- Make the functions and means of power regulator as perfect and effective as possible
- Step up efforts in crafting power laws and regulations
- Speed up the creation of regulatory organization and system



Thank you!
