

 中国华能集团公司
CHINA HUANENG GROUP

Sustainability Report 2009



Green Development · Supplying Clean Energy

This report is published in both Chinese and English versions.
For any reference, please contact us as follows:
Tel: +86-10-63228800 / 8811
Fax: +86-10-63228866
E-mail: hncsoffice@chng.com.cn
Mailing Address: No. 4, Fuxingmennei Street, Xicheng District, Beijing
Postal Code: 100031
You can also visit the website of China Huaneng Group for this report in PDF.
Website: <http://www.chng.com.cn>



In support of The Global Compact



CHINA HUANENG GROUP

 中国华能集团公司
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China Huaneng Group (hereinafter referred to as CHNG) has a corporate logo comprised of deformed letters "H" and "N".

The letters "H" and "N" are capitalized initials of "Huaneng", which mean to "contribute to the rejuvenation and well-being of the Chinese nation by providing energy and power".

The letter "H" in bold brings forth a visual effect featuring safety, reliability and trustworthiness. The letter "N" is linked to "H" with three radials. They together form a logo in the shape of lightning that symbolizes everlasting circulation and endless energy. With deep blue as the main tone, the corporate logo represents solemnity, preciseness, tranquility and harmony, as well as broadmindedness just as vast ocean embraces streams to its tide and global ambition.

The corporate logo looks like mountains, magnificent and lofty. It features a precise and awe-inspiring composition and a visual sense of simplicity and vigorousness, representing the sacred mission and modern demeanor that CHNG undertakes as a leading state-owned enterprise.

About this Report

Reporting Period

1 January 2009 - 31 December 2009, when appropriate the report includes additional content and information that pre-dates the stated reporting period. Information on our overseas enterprises is excluded from the data.

Reporting Cycle

Our sustainability report is released annually and this is our fourth report since 2006.

Main Contents

The report outlines our performance on safety, environmental, economic and social issues at the Group level. It also includes information and case studies from our subsidiaries and grassroots enterprises.

Compilation Conformance

The report is compiled in accordance with the *Guideline on Performing Social Responsibility by Central Enterprises* released by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council and in light of both the Global Reporting Initiative (GRI) *Sustainability Reporting Guidelines (G3)* and the *Social Responsibility Indicator System for Power Generation Industry* by Chinese Academy of Social Sciences (CASS).

Major Changes

The 2009 report takes the "Green Development · Supplying Clean Energy" as its theme, and sustainable development practices and performance of the Company in 2009 are systematically illustrated. "Action Plans on Green Development" and "Green Development in Huaneng" are adopted to present our concepts and actions on transforming development mode and tackling global climate change.

References to China Huaneng Group

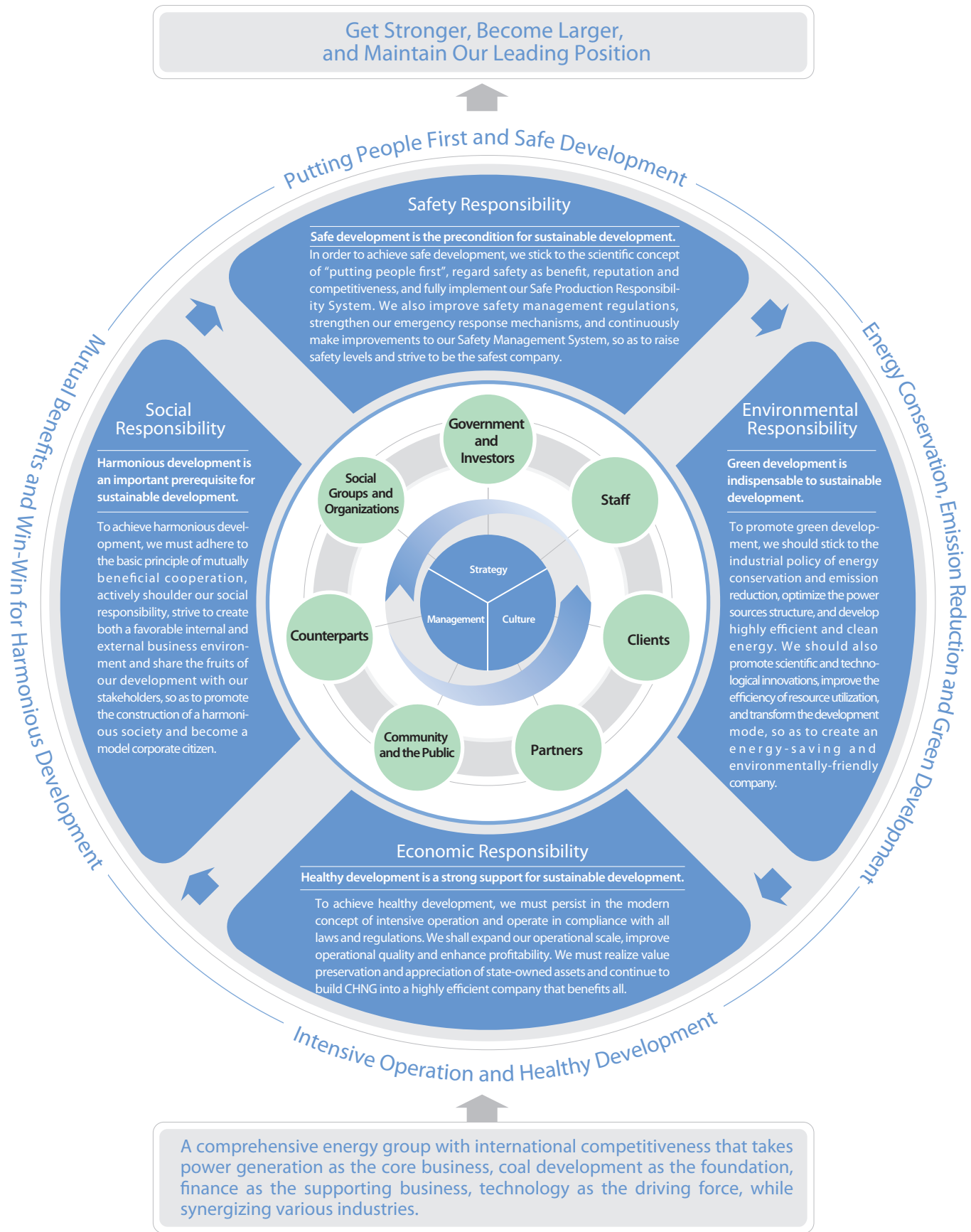
All references to "CHNG", "China Huaneng", "the Group Company", "Huaneng" or "the Company" refer to the China Huaneng Group.

Declaration on Sustainable Development of Huaneng

- ◆ Persist in obeying and serving national interests and development strategies, so as to set an example in promoting economic and social development in all respects.
- ◆ Persist in scientific development and technological innovation, so as to set an example in building a resource-conserving and environment-friendly society.
- ◆ Persist in pursuing operating performance in a rational way, so as to set an example in promoting harmony between enterprises and society.
- ◆ Persist in the policy of “depending on employees and the masses to develop enterprises”, so as to set an example in putting people first and sharing benefits.
- ◆ Persist in contributing to society and benefiting the people, so as to set an example in practicing social ethics.



Sustainable Development Model of Huaneng



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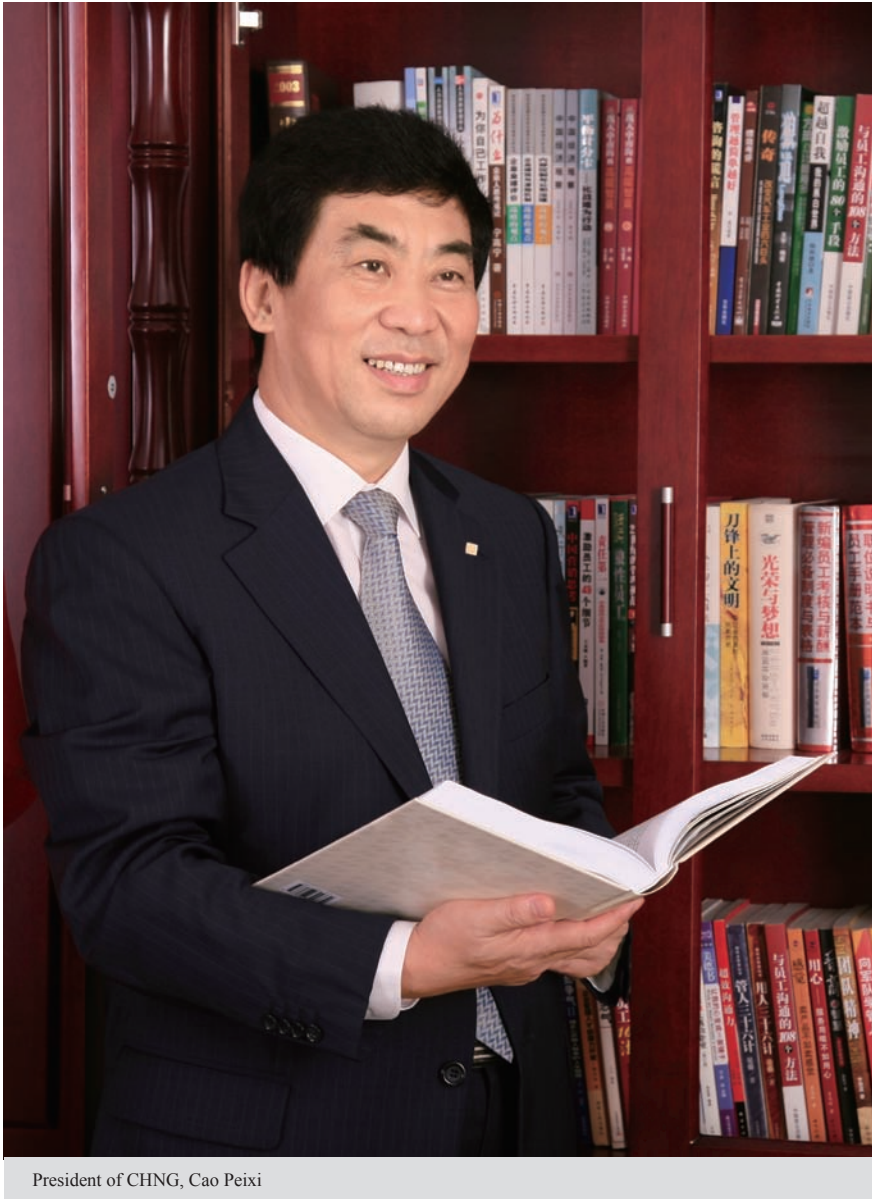
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Address from the President



President of CHNG, Cao Peixi

2009 was both an extremely critical and positive year for China Huaneng Group. We faced severe challenges from the international financial crisis and our internal business development was tested. However, we united to conquer the difficulties and thoroughly studied and practiced "Scientific Outlook on Development". We paid great attention to production and operation performance,

rigorously controlled costs, strived to increase efficiency, continuing to add value to state-owned assets. We persisted in improving quality of our development, pushing forward structural adjustments, optimizing the allocation of resources, as well as positively developing clean energy, and continuously improving our sustainable development mode. Technological innovation was key to our development and we were committed to improving our independent innovation in the future by stimulating our vitality and strengthening our development mode. We were also committed to improving our management ability and perfecting our management system and methodology, as well as optimizing our management processes and enhancing the overall competitiveness of the company. CHNG was devoted to strengthening the Chinese Communist Party, guaranteeing its ideology and politics. In 2009, among Chinese power generation enterprises, we were the first to turn loss into profit; we surpassed an installed power generation capacity of more than 100 GW; we ranked among Fortune 500 Companies. We did a solid work and the overall strength continued to lead in electricity industry, which made firm foundation for CHNG to develop better and faster.

Currently, the world's attention is focused on how best to use all forms of energy, protect the environment and preserve global resources in ways that do not damage our planet or restrict economic and social development. At CHNG, we firmly believe

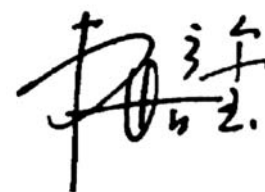
that we have an obligation as a responsible company to efficiently utilize resources, minimize environmental pollution, and tackle climate change in order to ensure long-term development and happiness, and contribute to the economic and social development of China. As a state-owned enterprise which is power-oriented, we have always attached great importance to China's energy security and to the impact brought by fossil energy development and utilization on the environment, following a green, low-carbon and recycling development path. In terms of industrial structure, we optimize coal power development, strive to increase the proportion of clean energies such as hydropower and wind power. In terms of technology, we adopt advanced supercritical, ultra-supercritical and combined generating units, improve energy efficiency, reduce pollutant and greenhouse gas emissions, boost research and development and commission demonstration projects for, among other things, GreenGen and high temperature gas-cooled reactor. In terms of indicator system, we continuously strive to achieve excellence and measure our progress against both domestic and international standards, and create energy saving & environment protection power plants. In terms of management, we strictly execute "veto system", reinforce performance assessment of energy conservation and emission reduction, and positively implement a new road to industrialization featuring high scientific and technological content, good economic returns, low resources consumption and little environmental pollution.

CHNG is committed to implementing **Action Plans on Green Development** from 2010. The Plan emphasizes our efforts to make structural adjustments, save energy, reduce emissions, explore technological innovation, and increase benefit by speeding up clean energy development, improving utilization of fossil energy, gradually decreasing pollutant discharge and greenhouse gas emissions and promoting energy technological innovation. The Plan aims to accelerate the establishment of resource-conserving & environment-friendly technique system and production system, and push scientific development to even higher levels through our commitments to clean development, resource conservation and the development of a low carbon economy. By carrying out the **Action Plans on Green Development**, CHNG will further transform its development mode, its strategy and its methodology in the years to come. In this respect,

our goal is to positively contribute to economic, political and social responsibility, and to create a development mode that symbolizes a green and low carbon future. CHNG has entered into a new period in its history, a period that will see as its main strategy the creation of an internationally competitive, integrated energy group.

Relying on scientific and technical progress, CHNG employees are committed to pushing forward energy conservation and emissions reduction, developing clean energy, pursuing low carbon development and leading industry-wide sustainable development. In 2010, our strategic focus is to transform our development mode, improve our competitiveness, reinforce our overall strength, pay more attention to the ways in which we can enhance the quality and efficiency of our development, and to promote energy-related structural adjustments and energy conservation. We will also improve our management systems, promote innovation, strengthen Party construction and team building, safeguard our security, and develop our ability to exploit market opportunities, control costs, continuous innovate, communicate and lead.

It is said that responsibility is good for gathering strength, and that cooperation leads to a prosperous future. CHNG realizes that our rapid development and growth come from China's reform and opening to outside world, from the country's economic growth, from the great support of the concerned ministries and commissions of the central government, and from the local governments where our projects are implemented. Our work relies on the strong and continued efforts of the every employee. In this new era, we will continue to fulfill our declaration on sustainable development, positively cooperate and partner with all stakeholders, and be a company responsibly creates profits. Our long-term goal is to continue to make contributions to the sustainable development of the economy, the environment and society.



May 2010

Members of the Management Team



Cao Peixi, President of CHNG and Vice Secretary of the CPC Huaneng Committee (second from left in the front row)

Huang Yongda, Secretary of the CPC Huaneng Committee and Vice President (second from right in the front row)

Zhang Tingke, Member of the CPC Huaneng Committee and Vice President (first from left in the front row)

Na Xizhi, Member of the CPC Huaneng Committee and Vice President (first from right in the front row)

Wu Ruosi, Member of the CPC Huaneng Committee and Vice President (third from left in the back row)

Huang Long, Member of the CPC Huaneng Committee and Vice President (third from right in the back row)

Guo Junming, Member of the CPC Huaneng Committee and Chief Accountant (second from left in the back row)

Ma Jing, Member of the CPC Huaneng Committee and Discipline Inspection Group Leader (second from right in the back row)

Hu Jianmin, Member of the CPC Huaneng Committee and Vice President (first from left in the back row)

Kou Wei, Member of the CPC Huaneng Committee and Vice President (first from right in the back row)

Thoroughly Studying and Practising Scientific Outlook on Development

The Party Member and Officials Get Educated
 Scientific Development Gets Improved
 The Masses Receive Benefits

From March to August, CHNG conducted a series of activities to support the study and implementation of Scientific Outlook on Development. We paid attention to the effect. Through elaborate organization and steady implementation, we reached consensus and gained fruitful achievements.



Secretary of the CPC Huaneng Committee, Huang Yongda

Main Principles

Persist in emancipating the mind.
 Show the characteristics of practices.
 Carry out the mass line.
 Give priority to positive education.

General Objectives

Conquer the difficulties.
 Turn loss into profit.
 Make adjustment and optimization.
 Realize scientific development.

Activity Media

Create new advantages.
 Realize new surpluses.

Important Consensus

- ★ Remember the mission of the state-owned enterprises, take "Three-Color Corporate Culture" ideas, and become the example of scientific development.
- ★ Insist on the development as the most important issue, creating new advantages and realizing new surpluses.
- ★ Grasp the rules of development, properly handle "Eight Relationships", strive to realize "Three Big, Three Strong", and keep the lead in comprehensive strength.
- ★ Continue the road of building "a comprehensive energy group with international competitiveness that takes power generation as the core business, coal development as the foundation, finance as the supporting business, technology as the driving force, while synergizing various industries".
- ★ Persist in people oriented, mobilizing and exerting the employees' enthusiasm.

Major Achievements

- ★ The understanding of scientific development becomes clearer, the orientation becomes more specific.
- ★ Take the lead in turning loss into profit, realizing the installed capacity exceeding 100 GW, and becoming the world's Fortune500 Company.
- ★ Deepen the reform of system and mechanism, improve management system and performance.
- ★ The leaders make concerted efforts, the Party members set good examples in their duties, and the employees are inspired. Thus the driving force of scientific development is strengthened.

Action Plans on Green Development

2010-2020

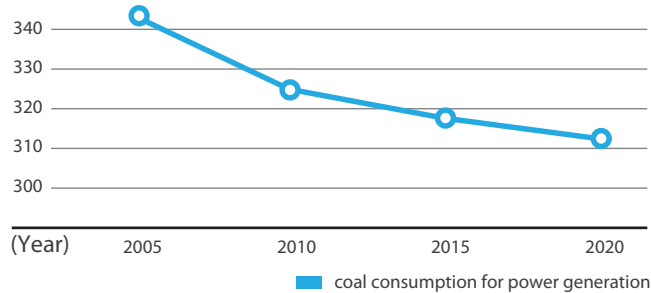
Guiding Ideology

Guided by the "Scientific Outlook on Development", we will implement each policy of the CCP and the government, adhere to the "Three-Color Corporate Culture" concept, transform our development mode, execute activities in resource conservation and environmental protection and optimize our indicators for energy consumption. We will improve the clean and highly efficient utilization level of fossil energy resources, develop clean energy, boost advanced energy technological innovations, and lower pollutant discharge and greenhouse gas emissions (GHG) per unit power. Through the pursuit of clean development, conservation development, and low-carbon development, we will enhance sustainable development and contribute to China's efforts to tackle global climate change.

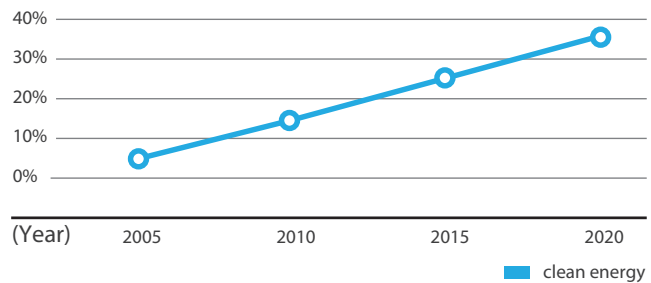
Main Target

Improve Energy Conversion Efficiency

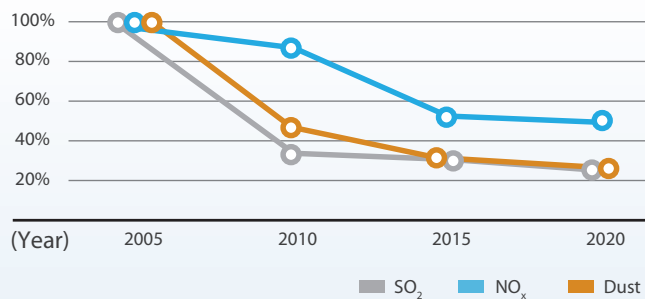
Unit: g/kWh



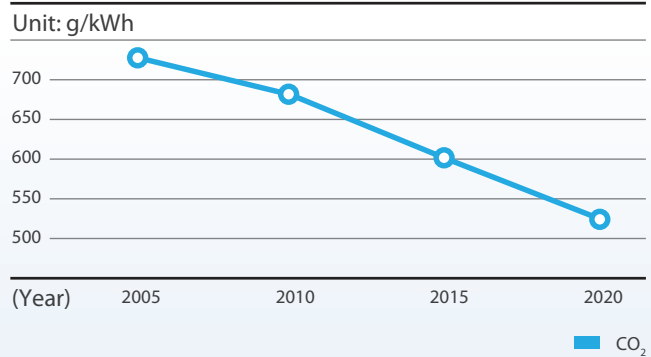
Increase the Proportion of Clean Energy



Reduce Pollutant Discharge Per Unit



Reduce Greenhouse Gas Emissions (GHG)





□ Further fulfill sustainable development

□ Fulfill the fundamental national policy of resource conservation and environment protection

□ Positively tackle global climate change

Key Work

Improve the clean and highly efficient utilization level of traditional fossil energy resources

Fulfill the policy of “**Developing Large Generating Units and Closing Down Small Ones**”, positively develop the capacity of supercritical and ultra-supercritical coal-fired generating units, achieve higher efficiency and lower emissions, develop combined heat and power generating units, improve the synthetic utilization efficiency of thermal energy, further improve energy conservation and emission reduction standards of the Company, promote the conservation and environmental protection of the enterprise, adopt advanced technologies, and reinforce the management of operation at all levels.

Continue to pursue sustainable and stable development of clean energy

Develop hydropower, speed up the development of wind power, seek to develop nuclear power, continue to reasonably develop natural gas power generation, stably boost solar power generation, and develop other renewable energy power generation projects.

Reinforce pollutant discharge and carbon assets management

Ensure that the all coal-fired power generation units are built with flue gas desulphurization equipment, speed up to equip all existing units with desulphurization equipment; starting with the 12th Five-Year Plan, implement flue gas desulphurization equipment at all newly built coal-fired power plants and refurbish flue gas desulphurization equipment at all existing coal-fired power plants; strengthen the management of the pollutant discharge and carbon asset; participate in the carbon asset market development and trading domestically and overseas.

Promote the development mode for conservation and environmental protection

Continue to promote a circular economy for the “integration of electricity and coal power”, strengthen integrated utilization levels of all resources, coordinate and promote the development of hydropower, provide responsible relocation plans and ecological protection, enhance civilized production and ecological protection, participate in key projects related to ecological development and engage in activities such as tree planting and reforestation.

Increase the construction of advanced energy technological innovation and demonstration projects

Rely on key national science and technology projects for innovation, boost development of nuclear power works, continue to promote GreenGen plan as the core of coal-based clean power generation, and develop near zero emission coal-fired power generation technology; do well in the demonstration project of flue gas CO₂ capture of conventional coal-fired power plant, produce CO₂ capture technology with independent intellectual property rights; study, develop, boost and utilize integrated solar power generation technology, examine the possibility of combining solar energy with conventional coal-fired power generation; positively boost research, development and construct demonstration projects for domestic large capacity and super large capacity technology, high parameter and super high parameter technology, large scale coal-fired power generating units with multi functions, improve innovation and promotion of advanced high efficiency coal-fired power generation technology; adopt advanced coal gas clean technology and boost the construction and operation of all equipment in demonstration projects.

The formal execution of **Action Plans on Green Development** indicates the deep promotion of Huaneng development mode to the field of green and low carbon, and indicates the new historical stage for strategy execution of Huaneng to build up the integrated energy group with international competitiveness.

Green Development in CHNG

1985-2009

● Optimize the Development of Coal Power to Improve Energy Conversion Efficiency

Optimize the Development of Coal Power

Improve Energy Conversion Efficiency

- 1985, CHNG first imported 350 MW coal-fired generating units in China and constructed power plants in Dalian, Shangan, Nantong and Fuzhou.
- 1992, CHNG first imported 600 MW supercritical coal-fired power generating units and it was put into operation in the No.2 Plant of Huaneng Shanghai Shidongkou Power Plant.
- 2004, the first domestic 600 MW supercritical coal-fired power generating units was put into operation in Huaneng Qinbei Power Plant.
- 2006, the first home made 1000 MW ultra-supercritical coal-fired power generating unit was put into operation in Huaneng Yuhuan Power Plant.
- 2007, the first home made 600 MW ultra-supercritical coal-fired power generating unit was put into operation in Huaneng Yingkou Power Plant.
- 2009, the first home made 660 MW supercritical tower brown coal boiler was put into operation in Huaneng Jiutai Power Plant.
- 2009, the 1036 MW ultra-supercritical coal-fired power generator, the biggest of its kind in China in terms of single unit capacity, was put into operation in the Huaneng Haimen Power Plant.

Develop Hydropower and Wind Power

Increase the Proportion of Clean Energy



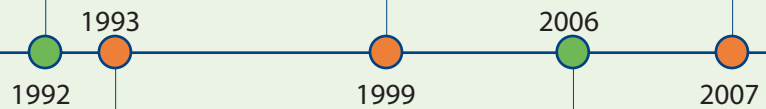
The first imported 600 MW supercritical coal-fired generating unit



The first large scale coal power integration project



The first explosion of Huaneng "Developing Large Generating Units and Closing Down Small Ones" Project



Strengthen Comprehensive Rectification

Decrease Pollutant Discharge Levels

1992
The first large scale flue gas desulphurization equipment of coal-fired power generation plant in China



1999
First domestic 1000 MW ultra-supercritical coal-fired power generating unit



Rely on Technological Innovation

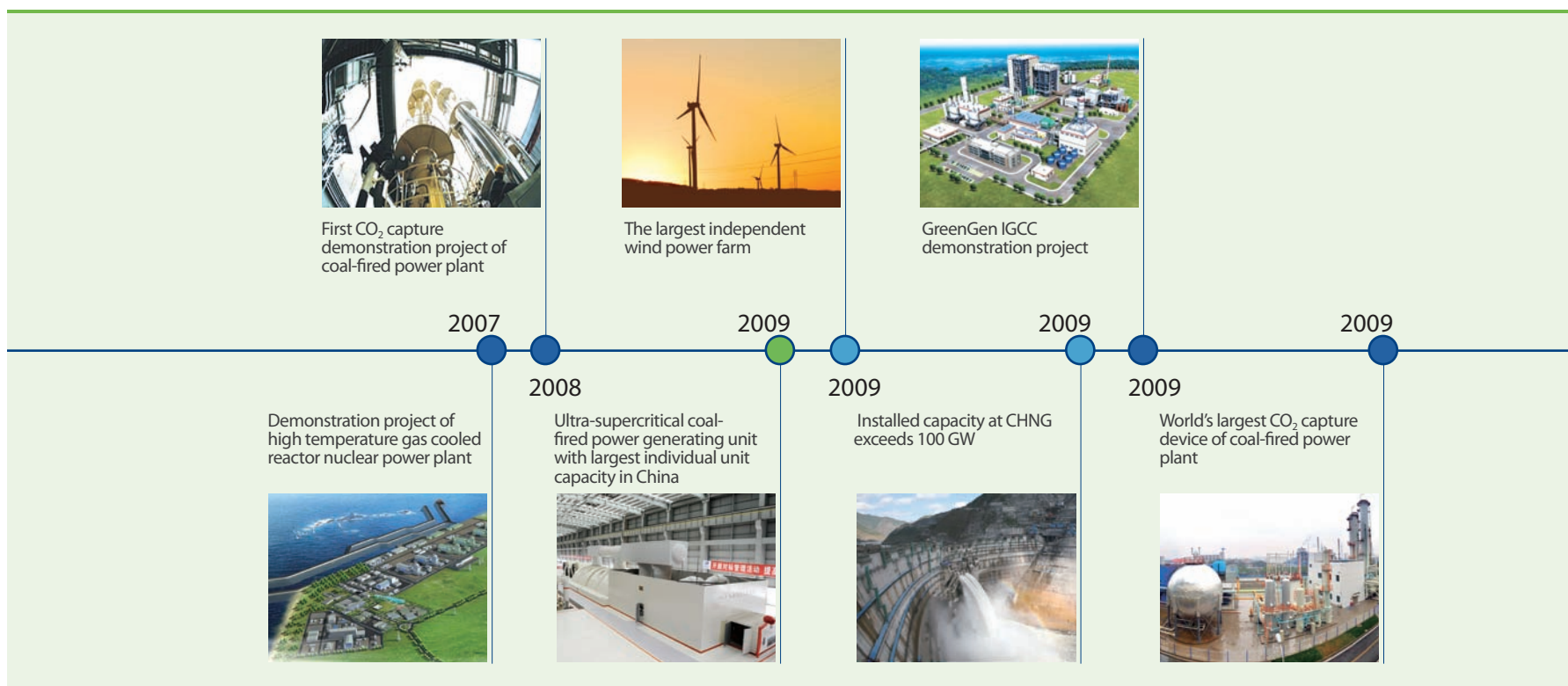
Tackle Climate Change

● Develop Hydropower and Wind Power to Increase the Proportion of Clean Energy

- 1986, construction of large scale hydropower plant, which was the first joint investment by province and Ministry of Water Resources of PRC in China, began at Huaneng Manwan Hydropower Plant.
- 1996, Huaneng Taipingyi Hydropower Plant was built and put into operation. The hydropower plant was the key construction project of the Eighth Five-Year Plan.
- 2004, Huaneng Nanao Solar Power Generation Plant was put into operation. The generation plant was the first hybrid wind-solar power supply system in China.
- 2009, the 300 MW Huaneng Fuxin Wind Power Farm, the biggest independent wind farm in China, was connected to the grid.
- 2009, the No.1 unit of Huaneng Changchun Biomass Thermal Power Plant, the first biomass demonstration project, began to synchronize.
- 2009, the Huaneng Shilin Photovoltaic Demonstration Plant was formally put into operation.
- December 2009, the No.3 Unit of Huaneng Xiaowan Hydropower Plant was put into operation, and CHNG's installed capacity exceeded 100 GW.

● Strengthen Comprehensive Rectification to Decrease Pollutant Discharge Levels

- 1993, the first large-scale thermal power plant flue gas desulphurization unit was put into operation at the Huaneng Luohuang Power Plant.
- 1999, the first large scale coal power integration project was built in the Huaneng Yimin Coal Power Company.
- 2004, CHNG was the first to advocate and execute the GreenGen Plan for high efficiency and environmental protection power generation; emission of pollutant and CO₂ approached near zero.
- 2006, the Huaneng Beijing Cogeneration Power Plant was the first power plant of its kind in China to import slag tap chamber, low nitrogen combustion, and fly ash recirculation technology, and was also the first to adopt new “flue gas chimney and cooling water tower integration” wet method flue gas desulphurization technology.
- 2007, the No.1 and No.2 cooling water towers of the Wulashan Power Plant were successfully demolished and dismantled, indicating that the “Developing Large Generating Units and Closing Down Small Ones” Project was implemented in full scale.



● Rely on Technological Innovation to Tackle Climate Change

- 2007, CHNG signed an agreement with Beijing government to conduct a CO₂ capture test demonstration project and founded Beijing Greenhouse Gas Capture and Treatment Laboratory.
- 2007, CHNG jointly invested with China Nuclear Engineering Group Co. and Tsinghua University to build Huaneng Shandong Shidaowan Nuclear Power Co. Ltd.
- 2008, CHNG completed construction of the first CO₂ capture demonstration project at the domestic coal-fired power plant at Huaneng Beijing Cogeneration Power Plant.
- 2008, CHNG established the first Greenhouse gas emission reduction research center in China in cooperation the Shanghai Electric Group.
- 2009, construction began on the Huaneng Tianjin IGCC Demonstration Power Station, which is China's first GreenGen demonstration station.
- 2009, the world's largest CO₂ capture device (100,000 ton/year) was constructed and put into operation in Huaneng Shidongkou No.2 Plant.



Strategy and Management

Events

On 25 January, Hu Jintao, the General Secretary of CPC Central Committee, National President, Chairman of the Central Military Commission, visited Huaneng Jinggangshan Power Plant.

On 1 February, CHNG held a general meeting of cadres from the Group Company to enhance the management of the Group Company.

From March to August, CHNG conducted a series of activities to support the study and implementation of Scientific Outlook on Development.

On 22 August, Xi Jinping, Member of Political Bureau of the CPC Central Committee, Secretary of the Secretariat of the Central Committee, Vice National President, visited Huaneng Yimin Coal Power Company.

On 7 September, CHNG issued the ***Company Management Interface of China Huaneng Group Co. (pilot edition)***.



Company Profile

China Huaneng Group is a key state-owned enterprise with the approval of the State Council.

The registered capital of China Huaneng Group is RMB20 billion Yuan. The Company is engaged in the following business: development, investment, construction, operation and management of power sources; production and sale of power and heat; development, investment, construction, production and sale of businesses and products related to finance, transportation, renewable energy and environmental protection; industrial investment, operation and management.

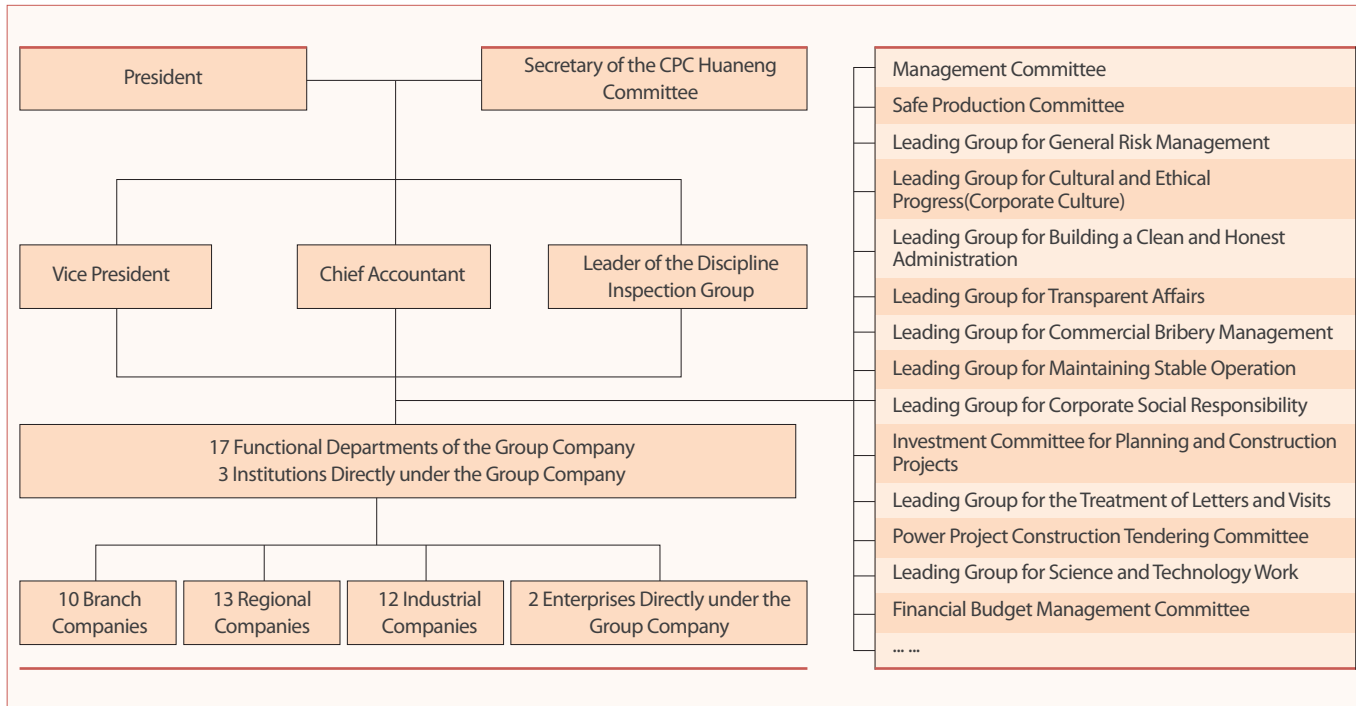
China Huaneng Group was first incorporated in 1985. Since then, the Company have provided experience to the reform&development and technological innovation of the power industry; we have played an exemplary role in improving enterprise management and increasing economic benefit for power enterprises; we have greatly contributed to meeting the requirement of economic and social development, as well as realizing maintaining and adding value to state-owned assets. The Company persist in continuous innovation and keeping leading position, cooperation and mutual benefits, clear direction and scientific development; we gradually cultivate the "Three-Color Corporate Culture" concept, which symbolizes a "red" company serving the needs of socialism with Chinese characteristics, a "green" company advocating technological innovation and environmental protection, and a "blue" company growing through relentless innovation and internationalization, and our core

values of "Integrity, Cooperation; Continuous Innovative and Progress; Performance-oriented and Serving the Nation".

China Huaneng Group is committed to building itself into a big group company with international competitiveness. By the end of 2009, the Company has 154 wholly-owned or majority-owned power plants distributed in 27 provinces, municipalities and autonomous regions and overseas, with total installed capacity of 104.38 GW. Businesses that support the main business, such as coal, finance, scientific and technological R&D, transportation, etc. begin to take shape. The Company was ranked Fortune 500 Company.

In the new era, China Huaneng will deeply implement Scientific Outlook on Development, taking "develop green power and supply clean energy" as our responsibility, and persist in sustainable development. The Company perfect our strategic orientation as "a comprehensive energy group with international competitiveness that takes power generation as the core business, coal development as the foundation, finance as the supporting business, technology as the driving force, while synergizing various industries". Taking "Get Stronger, Become Larger, and Maintain Our Leading Position" as our development direction, we strive to create advantages in structure, system, technology, management and talent. We will focus on transforming development mode, improving competitiveness and reinforcing comprehensive strength, as well as promote better and faster development of the company.

Organizational Structure



Branch Companies

Huaneng Northeast Branch Company
 Huaneng Hebei Branch Company
 Huaneng Henan Branch Company
 Huaneng Shanxi Branch Company
 Huaneng Central China Branch Company
 Huaneng East China Branch Company
 Huaneng Jiangsu Branch Company
 Huaneng Zhejiang Branch Company
 Huaneng Jiangxi Branch Company
 Huaneng Guangdong Branch Company

Regional Companies

North United Power Co., Ltd.
 Huaneng Hulunbeir Energy Development Co., Ltd.
 Huaneng Jilin Power Generation Co., Ltd.
 Huaneng Heilongjiang Power Generation Co., Ltd.
 Huaneng Shandong Power Generation Co., Ltd.
 Huaneng Hainan Power Generation, Inc.
 Huaneng Sichuan Hydropower Co., Ltd.
 Huaneng Lancang River Hydropower Co., Ltd.
 Huaneng Tibet Power Generation Co., Ltd.
 Huaneng Shaanxi Power Generation Co., Ltd.
 Huaneng Gansu Energy Development Co., Ltd.
 Huaneng Ningxia Energy Co., Ltd.
 Huaneng Xinjiang Energy Development Co., Ltd.

Industrial Companies

Huaneng International Power Development Co. (HIPDC)
 Huaneng Power International, Inc. (HPI)
 Huaneng Renewable Energy (holding) Co., Ltd.
 Huaneng Nuclear Power Development Co., Ltd.
 GreenGen Co., Ltd.
 Huaneng Energy & Communications (holding) Co., Ltd.
 Huaneng Capital Service Co., Ltd.
 China Huaneng Group HK Ltd.
 Huaneng Technology Centre
 Xi'an Thermal Power Research Institute Co., Ltd.
 Huaneng Comprehensive Industrial Co., Ltd.
 Beijing Huaneng Building Construction Management Co., Ltd.

Enterprises Directly under the Group Company

Huaneng Shandong Shidaowan Nuclear Power Co., Ltd.
 Huaneng Hainan Industrial Co., Ltd.



Investigation of Mr. Cao Peixi, president of CHNG, at Taicang Power Plant

Corporate Strategies

- **Industrial Coordination Strategy**

Persist in the strategic orientation of “building a comprehensive energy group with international competitiveness that takes power generation as the core business, coal development as the foundation, finance as the supporting business, technology as the driving force, while synergizing various industries”, and promote the harmonious development of the core business(electricity) and supporting business.

- **Energy Conservation and Environmental Protection Strategy**

Persist in green development, continually reduce the discharge of pollutants, improve the efficiency of resource utilization, develop recycling economy and build an energy-conserving and environment-friendly enterprise.

- **Strong Management Strategy**

Give full play to the fundamental role of management, form a benign mechanism of continuously improving and strengthening management, so as to constantly enhance its capacity in decision-making, implementation and control.

- **Technological Innovation Strategy**

Constantly strengthen the “dominant position” of enterprises in independent innovation, further improve the technological innovation system, and enhance independent innovation capacity.

- **“Going global” Strategy**

Strengthen international exchanges and cooperation, improve the degree of internationalization, expand the international market share, widen the development space, utilize both domestic and foreign resources and explore the two markets, and promote corporate development.

- **Talent-intensive Strategy**

Stick to the “Scientific Outlook on Development” as the overall guidance in human resource work, continuously optimize human resource structure, and strengthen the building of high-caliber workforce so as to provide human resource support for corporate development.

- **Cultural Cohesion Strategy**

Further improve the core value system, perfect the standard of behavior, optimize the image identification system, and build “three-color corporate culture” which is unified, diverse and distinct.

Management System

In accordance with **Proposal for Carrying forward Management Revolution and Perfecting Company Management System**, CHNG defines a three-level liability management system, that is, “group company-regional companies/industrial companies-grassroots enterprises”. The Group Company is central to CHNG’s overall strategic planning, investment and financial strategy, allocation of resources, resolution of problems, and management. Regional and industrial companies are profit-earning centers and are principally responsible for development, construction, production and operational activities. The grassroots enterprises are cost control centers and are principally responsible for safe production.

Opportunities and Risks

Major Opportunities

- The rapid growth of the Chinese economy and growing demands for power and energy provide CHNG with an opportunity to further increase power generation and market-share.
- The Nation introduces tackling climate change into national economic and social development plan, vigorously develops green economy, fosters a new economic growth point featuring low carbon emission, which brings opportunities to our green, low carbon and recycling development.
- International exchange and energy cooperation is on the rise, which provides opportunities for CHNG to execute its “Going global” strategy and improve the ability of independent innovation.
- The State-owned Assets Supervision and Administration Commission is promoting economic value added (EVA) inspection, which provides opportunities to standardize investment behavior, lower investment risk and improve development quality.

Major Risks

- Facing various industries, broad distributed areas and great amount of employees, we have more difficulties in obeying rules, implementing differential management and strengthening the specific and effective of management.
- Uncertainty surrounds the supply of coal and pressures associated with its price make guaranteeing availability and decreasing cost difficult.
- The scale of national installed capacity continuously increases, bringing forward intensive competition in power industry.
- The continued growth of the Company and increase of newly-constructing projects requires capital, and leads to the situation of capital shortage.

In 2009, CHNG strengthened the construction of the Group Company, and enhanced the management and service ability of the Group Company. By following the principle of “Separation of ownership and management”, CHNG made improvements to the management and governance system, promoted the construction of regional companies, strengthened professional and intensive management system, reorganized or established ten branch companies, prepared seven regional institutions for construction, gradually standardized management in regional companies, and improved efficiency of resource allocation.

Corresponding Measures

- Improve sustainable development. We transformed our development model, promoted our green development programs, improved our overall competitiveness and further improved our integrated power.
- Improve coordination capacity within the industry. We perfected the coal–power industrial value chain, reinforced provisions for coal capacity, improved the profit earning capacity of our finance, energy and transportation businesses, and increased our participation in coordination and cooperation activities among different industries.
- Improve business operations and management. We reinforced our ability to analyze and assess our business environment, strengthened our ability to adapt to market changes; rationalized system and mechanism, enhanced our benchmarking management and system construction, strictly controlled risk; reinforced marketing management, paid attention to cost control in the process of enterprise operation and management.
- Raise the capacity of capital operation. We explored capital operation channels, optimized the structure and quality of our assets, and widened the development agenda. We also enhanced capital centralization and reduced our capital costs.



Huaneng Gezhen Hydropower Plant



Mr. Huang Yongda, Secretary of the CPC Huaneng Committee, investigated Huaneng Hainan Power Generation, Inc.

Supervision and Anti-corruption

Perfecting Punishment and Prevention System

In accordance with the *Implementation Measures of China Huaneng Group on the Establishment and Improvement of Corruption Punishment and Prevention System 2008-2012*, we strengthen organization and organizational leadership, make clear task decomposition, implement work responsibility, enhance supervision and inspection, and give detailed guidance, thus an Huaneng characteristic construction of punishment and prevention system is effectively improved. We carry out various anti-corruption publicity and education activities, and promote the benefits of incorruptible business environment to our employees.

Strengthening System Construction

We study and fulfill *Provisions on Honest and Clean Conduct of the Leadership Members of State-owned Enterprises* to strengthen our company and build a punishment and prevention system. We do this to perfect the collective decision-making system and to develop a mechanism for managing rights, personnel, and regulations. To prevent

corruption at CHNG and to maintain a clean and honest working and business environment, we incorporate anti-corruption requirements to our management systems, strengthening the supervision of management, and standardizing acceptable business management behavior and conduct.

Strengthening Supervision and Audits

CHNG carries out performance supervision on fuel management, the implementation of group decision-making, and safe production management. In 2009, fuel management performance audits uncovered 236 institutional defects and 595 management defects. In total, 752 supervision suggestions were received and 546 correction and improvement measures were suggested. In total, RMB 18.756 million Yuan was retrieved.

In 2009, we also conduct economic benefit, economic responsibility, internal control system and infrastructure construction audits. We completed 891 audits in accordance with the Provisional Method of Patrolling Work of China Huaneng Group and, when necessary, implemented appropriate correction measures.

Building Corporate Culture

By establishing the “Three-Color Corporate Culture” concept to meet the requirements of modern state-owned enterprise system with Chinese characteristics, we will continue to improve our development strategy and provide benefits to our employee. The Group Company is responsible for determining the corporate culture strategy of CHNG, the regional/ industrial companies are each responsible for executing the strategy internally, and grassroots enterprises are responsible for implementation at the foundational level. The Company actively propagandizes and

implements core values of corporate culture, strengthen our employees’ understanding of “Three-Color Corporate Culture”. We believe the concept plays an important role in our general management and in the promotion of a stable development.

In 2009, 4 organizations such as Jinggangshan Power Plant and Taicang Power Plant were awarded the title of “Civilization Unit of China”, and 14 organizations including headquarters, North United Power Co., Ltd., etc. were awarded the title of “Advanced Unit for Building Spirit and Civilization of China”.

• Corporate Mission

A “red” company serving the need of socialism with Chinese characteristics;

A “green” company advocating technological innovation and environmental protection;

A “blue” company advancing forward via continuous innovation and internationalization.

• Strategic Objective

Huaneng is committed to building itself into a large enterprise group with international competitiveness featuring “solid capacity, world-class management, serving the nation and embracing the world”.

• Strategic Orientation

A comprehensive energy group with international competitiveness that takes power generation as the core business, coal development as

the foundation, finance as the supporting business, technology as the driving force, while synergizing various industries.

• Core Values

Integrity, Cooperation;

Continuous Innovative and Progress;

Performance-oriented and Serving the Nation.

• Corporate Spirit

Dedicated spirit of overcoming difficulties;

Pioneering spirit of blazing new trails;

Enterprising spirit of practicing self-evaluation and self-motivation;

Innovative spirit of daring to be the first.

• Corporate Work Style

Pioneering, Efficient, Trustworthy, Frugal

Social Responsibility Management

At CHNG, we conform to the **Action Guidance for Performing Social Responsibility**, and continue to improve our sustainable development management system. Our Leading Group and Office of Social Responsibility work to regularly improve our engagement in social responsibility. Each year we publish a sustainable development report and update our sustainable development concept system. In our 2006 Sustainability Report we introduced the “Four Developments” and sustainable development with Huaneng characteristics; in 2007 Sustainability Report, we proposed the “Declaration on Sustainable

Development of Huaneng”, clarified “set-an-example in five aspects”; in 2008 Sustainability Report, we took “Confidence-Momentum for Development” as the theme and showed how sustainable development is a strategic part of our daily business operations; in our 2009 report, we introduce our green development objectives.

We were awarded the “2009 Special Award for Social Responsibility of Chinese Enterprises”, and our 2008 Sustainability Report was awarded the Leading Enterprise Award of “Golden Bee 2009 Excellent CSR Report”.

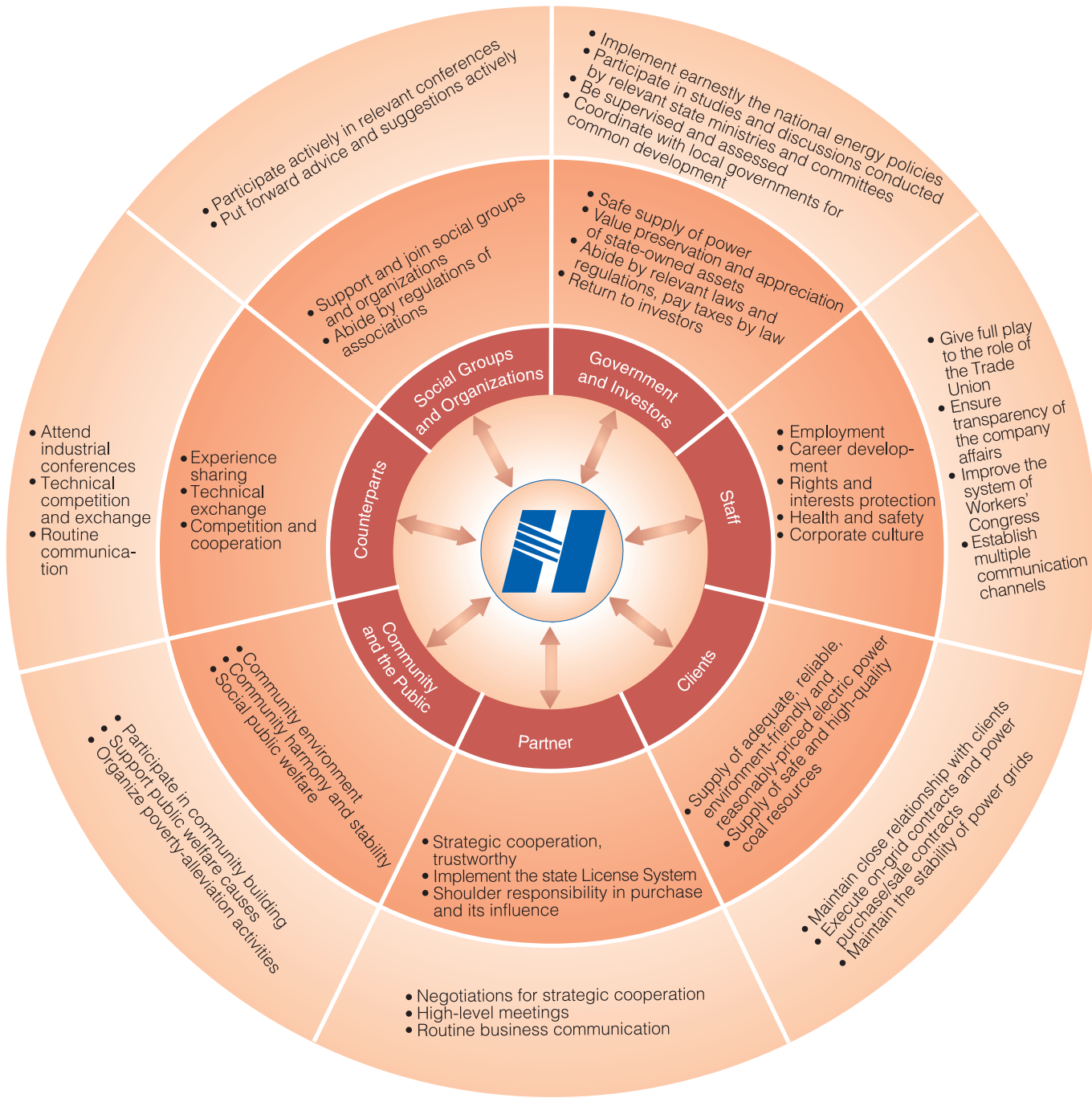
Key Performance Indicators

Environmental Indicator	Unit	2005	2006	2007	2008	2009
Proportion of clean energy	%	7.21	8.79	9.06	12.40	15.00
Coal consumption for power generation	g/kWh	345.78	344.87	337.37	333.59	327.70
Comprehensive service-power consumption rate of power plant	%	5.79	5.91	5.88	5.90	5.61
Emission of SO ₂	g/kWh	5.58	5.12	3.93	3.33	2.41

Economic Indicator	Unit	2005	2006	2007	2008	2009
Installed capacity	10 MW	4321.42	5718.50	7157.50	8586.20	10438.20
Power output	100 million kWh	2564.15	2820.32	3270.35	3645.00	4200.95
Total asset	100 million Yuan(RMB)	2268.86	2860.75	3760.86	4635.94	5782.81
Total revenue	100 million Yuan(RMB)	739.71	853.83	1156.07	1513.75	1777.40
Tax delivery	100 million Yuan(RMB)	96.30	112.73	141.80	141.20	166.48
Profit	100 million Yuan(RMB)	80.97	96.21	106.82	-58.41	68.85
Labor productivity of total employees	10 thousand Yuan (RMB) / (person-year)	51	58	54	29	44

Social Indicator	Unit	2005	2006	2007	2008	2009
Equivalent utilization coefficient of power generation equipment	%	92.85	93.39	93.32	91.69	92.27
Major injury and death accident	No.	0	0	0	0	0
Major equipment accident	No.	0	0	0	0	0
Common equipment accident	No.	7	3	5	4	3
Staff	No.	63773	66365	88539	98560	129992
Join-in rate of labor union	%	100	100	100	100	100
Signing rate of labor contract	%	100	100	100	100	100
Coverage rate of collective contract	%	100	100	100	100	100
Women staff	No.	20025	20368	24654	26633	27088
Donation amount (headquarters)	10 thousand Yuan (RMB)	988	650	2500	2700	3200

Stakeholders



Stakeholders
 Major Concerns
 Communication and Exchange

Membership of Important Social Groups and Organizations

Name of organizations	Position
China Center for International Economic Exchanges	Standing Director
United Nations Global Compact	Member
Association of the Electricity Supply Industry of East Asia and the Western Pacific	Member
Central Enterprises Party Building & Ideological and Political Work Seminar	Vice Chairman
China Electricity Council	Vice Director-General
China Enterprise Confederation & China Enterprise Directors Association	Director
China Group Companies Promotion Association	Vice Chairman
Chinese Society for Electrical Engineering	Vice Director-General
China Power Supervision Standardization Technical Committee	Member
China Association of Work Safety	Vice Chairman
China Association for the Promotion of Industrial Development	Director
China Supervision Association Power Branch	Vice Chairman
China Association of Chief Financial Officers	Standing Director
China Accounting Society Power Branch	Vice Chairman
China Federation of Industrial Economics	Standing Director
China Corporate Culture Work Seminar	Standing Director
China Association of Power Equipment Management	Vice Director-General
Chinese Nuclear Society	Standing Director
China Nuclear Energy Association	Vice Director-General
China International Institute of Multinational Corporations	Vice Chairman
Chinese Society for Hydroelectric Engineering	Vice Director-General
China Institute of Internal Audit	Standing Director
China Electric Power Construction Association	Member
China Information Industry Association	Vice Director-General



1 Safety Responsibility

Putting People First and Safe Development

Events

On 4 January, an enlarged meeting of the Production Safety Committee was held on the first working day of 2009.

Starting from May, CHNG performed the “Three Actions of Safety Production”, including safety laws implementation, rectification plans and publicising and education activities.

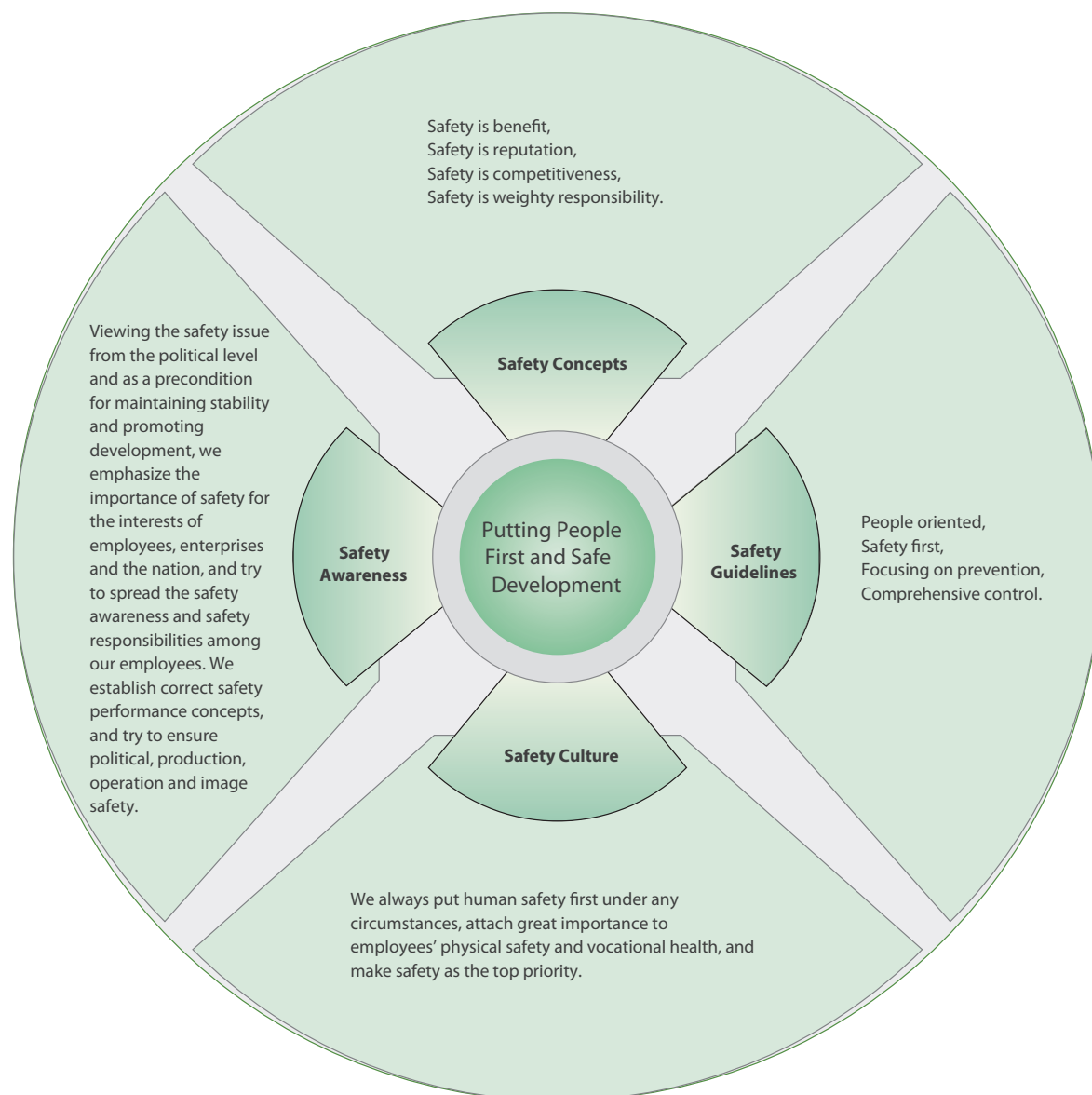
On 26 September, power generation capacity at earthquake-hit Huaneng Taipingyi Hydropower Plant returned to pre-5.12 Earthquake levels.

In October, CHNG successfully completed the task of supplying power for the 60th anniversary of the founding of the People’s Republic of China.



■ Safety Concept

Safe development is the precondition for sustainable development. In order to achieve safe development, we stick to the scientific concept of “putting people first”, regard safety as benefit, reputation and competitiveness, and fully implement our Safe Production Responsibility System. We also improve safety management regulations, strengthen our emergency response mechanisms, and continuously make improvements to our Safety Management System, so as to raise safety levels and strive to be the safest company.



■ Safety Objectives

To ensure the safety of our people and equipment, to avoid accidental death, mass injury, major or serious equipment-related accidents, fire-related incidents, and serious traffic accidents; to prevent large-scale environmental pollution, and all other incidents or accidents that may impact the image of our company. To ensure the production safety, operation safety, political safety and image safety.

■ Safety Measures

Strengthening Safety Management System

• Organizational Leadership

We have established a production safety management system that is applicable at all levels of the company, including group company, regional/ industrial companies and grassroots enterprises. We set up Production Safety Committees for all enterprises. Leaders of each enterprise are responsible for general safety and for organizing and implementing production safety work environment. On the first working day of each year the company holds a meeting of the Production Safety Committee.

• Responsibility Agreement

We have signed a **Production Safety Responsibility Agreement** with all companies in order to guarantee the implementation of the safe production responsibility system. In this way safety responsibility was designated level by level to each subsidiary grassroots, department, workplace, team and post.

• Performance Evaluation

We promote all forms of safety management, including production safety, operation safety, political safety and image safety and have established assessment criteria for each of the "Four Safeties".

The performance assessment criteria for production safety is composed of veto and control criteria, which conduct assessments on accidental death, accidents related to equipment, unplanned outages, and unit maintenance.

The performance assessment criteria for operation safety is related to key criteria, which conduct assessments on legal operation and asset loss.

The performance assessment criteria for political safety is composed of veto and control criteria, which conduct assessments on how we execute Party and State policy, laws and regulations, and mass injury.

The performance assessment criteria for image safety is composed of veto and control criteria, which conduct assessments on negligence in the workplace and accidents that may impact the company's image.



Flood Prevention Exercise

• Emergency Management

On the basis of the general requirements that preventive measures should be implemented effectively, CHNG strengthens risk analysis and research ability, pays attention to the compilation of preventive action plans and team building of emergency response teams and develops the capacity of the teams to handle emergencies. During the 2009 snowstorm disaster, power plants in Shang'an, Hanfeng, Yangluo, and Chaohu successfully completed the task in guaranteeing steady power supply. CHNG also held an integrated emergency response exercise for typhoon and flood prevention, and conducted emergency response exercises to effectively tackle fire-related mining incidents.

• Management on Safety Accidents

We stick to the principles of "Four Must". In accordance with the **Accountability and Punishment Measures for Production Safety Accidents** and **Regulations on Investigation of Power Production Accidents**, we have refined our accident management responsibility system, and strengthened accident assessment and analysis in order to implement appropriate measures that prevent the reoccurrence of similar accidents.



Strengthening the Foundation of Safety

• System Construction

We have conducted pilot work on safe production management system in power plants, and have compiled the **Regulation on Safe Production Work**, and the **Execution Detailed Rules on Safety Performance Evaluation**. The company has issued the **Requirements on Power Plant Production Safety Management System**, the **Document Compilation Guidelines on Power Plant Production Safety Management System**, and the **Technical Standard for Insulation Supervision of Thermal Power Plant** to ensure that we continue to improve safety management system.

• Team Building

Focusing on grassroots, foundation and basic skills, CHNG treats team building as an important foundation work of enterprise management. CHNG carried out “to be excellent work group and excellent employee” activities and encouraged innovation, created a harmonious and stable environment for the growth of talents, comprehensively improved the quality of employees and strengthened the basis for production safety. No.3 work shift of operation section of Beijing Cogeneration Power Plant, the maintenance mechanical inspection team of Fengzhen Power plant, and No.1 work shift of Wulashan Power Plant, were titled as “Worker Pioneer” by All China Federation of Trade Unions.



Employees Signed Safety Commitment



Investigation of Company leaders in Huaneng Gansu Energy Development Co., Ltd.

• Infrastructure Construction Management

CHNG earnestly implemented the responsibility of safety management on project constructors, fully utilized the organizing, coordinating and supervising functions of project owners, and organized all parties participating in the construction to constantly carry out “Special Actions against Breach of Regulations”. CHNG strictly implemented “Three Synchronizations” system during the project constructions, that is, safety facilities of new construction, reconstruction and expansion projects and the main projects must be designed, constructed and put into use synchronously with main project, so as to completely prevent safety accidents in infrastructure construction projects.

• Coal Mines Management

At CHNG, all coal mines strictly executed the Safety Production Standard and promoted “two tickets system” (operation ticket, work ticket), safety evaluations and safety quality standardization. CHNG implemented surveillance by the masses to strengthen on-site surveillance and inspection, strictly implemented on-site technical operation rules for production safety and conducted constructions or productions according to the approved technical measures, thus enhanced the coal mines safety level. In 2009, the open mine of Yimin was honored as a “Double Top-10 Excellent Coal Mine” of China.

Improving the Good Condition of Equipments

• Equipment Management

We strictly adhere to the principle that equipment “in need of repair must be repaired to recover its good condition”. We continually strengthen the quality of our management and inspection control processes, organize technical innovation projects, and modify our equipment in accordance with new demands on energy conservation and emission reduction to ensure the good condition of our equipment. In 2009, the equivalent utilization efficiency of our units increased by 0.37%, and unplanned outages were significantly decreased.

In 2009, the No.2 unit of Dalian Power Plant safely ran for 760 days in succession, setting a new record for large scale thermal power units in China. In addition, the No.9 unit of the Haikou Power Plant and the No.2 unit of Dalian Power Plant were awarded National Gold Medal of 300MW coal-fired generating Units , and the No.1 unit of Qinbei Power Plant, the No.2 unit of Dalian Power Plant, and the No.3 unit of Beijing Cogeneration Power Plant were each awarded a National First Prize among the 600MW, 300MW, and 200MW thermal power units of China. 79 power plants of Dalian, Fengzhen, Weihai, Xucun, and Tongtou etc. encountered no unplanned outages throughout 2009.

• Safety Evaluation

CHNG thoroughly carried out safety evaluation, found and corrected errors and drawbacks. We explored self-restricting mechanism and continuous improvement system on production safety, strived to improve safety level of management and equipments

• Supervision and Rectification

CHNG focused on deepening the inspection and elimination of hidden dangers to its equipment and overall work environment and conducting breach of rules and regulations, paid more attention to safety on the production line, and strengthened supervision at the workplace. In 2009, subordinate power generation enterprises inspected 18911 hidden dangers, rectifying 18392 (97.26%). They also inspected 125 major hidden dangers, rectifying 110 (88%). Coal mine enterprises inspected and eliminated 1311 general hidden dangers, rectifying 1311 (100%). All hidden dangers not yet eliminated are listed in our rectification plan.



Equipment Inspection and Rectification

Fostering Safety Culture

• Training-on Employees

CHNG appropriately publicizes and advocates all national guidelines and policies, all laws and rules, and all main measures on safe production, and organizes experiences exchange. We also organized study and training sessions on safety to raise awareness among our employees. We have set up Huaneng Shanghai Power Maintenance Training Center, and organized the first training course for senior workers on maintenance; we organized the training course prior to examination of Registered Safety Engineer, continuing reeducation training course, and the pre-job training course for the safety supervision personnel of the company.

• Cultural Activities

CHNG put safety culture into the overall plan of enterprise cultural construction and promoted a culture of safety by cultivating good habits and encouraging all employees to continuously contribute to the safe development of the company; we organize safety forums and request the participation of all subsidiary enterprises. They also organize safety competitions and offer awards for the best safety speech and slogan.



■ Safety Performances

No serious equipment accidents, no serious fire accidents, no ultra traffic accidents or large-scale pollution accidents occurred in 2009. In 2009, two casualty accidents occurred, with two deaths, decreased by one accident and one death compared to 2008. Three common equipment accidents in power generation occurred in 2009, one fewer than 2008. 53 Class 1 equipment failures occurred in 2009, decreased by 56 compared to 2008; 84 unplanned outages occurred in 2009, decreased by 89 compared to 2008. No incidents or accidents that may impact the stability and image of our company occurred in 2009.

Overview of Corporate Production Safety (2005-2009)

Item	Unit	2005	2006	2007	2008	2009
Unplanned outage	times	262	206	142	173	84
Major equipment accident	times	0	0	0	0	0
Common equipment accident	times	7	3	5	4	3
Injury and death by accident	times	3	1	3	3	2

Warning and Reflection

In 2009, the installed capacity of CHNG continued to increase and our business operations expanded. These factors brought new safety challenges and operating risks to CHNG and our employees. Although, 2009 was a year of continued improvement, death accidents and equipment accidents caused by human errors still happened. Loss of life made us deeply grieved. In the spirit of being highly responsible for our country, corporation and employees, we shall be constantly on

guard, draw experience from the accidents, put people first and cherish life. According to the requirement of “ensuring personal safety with zero breach of regulations, ensuring equipment safety with zero defect” We will further improve our safety management level, create safety working atmosphere, to ensure the realization of our safety objectives, and to promote the joint development of our enterprise and our employees.



Safety Knowledge Contest



CASE STUDY

Strengthening the Foundation to Improve Intrinsic Safety Levels

—Fengzhen Power Plant realized safe production of 1000 days

As a power plant put into operation since 20 years ago, Fengzhen Power Plant is the first power plant with an installed capacity of over 1000MW in the ethnic minority region. By 30 October, 2009, Fengzhen Power Plant realized the second safe production of 1000 days, and realized non-unplanned-outage throughout 2009.

In early 2009, Fengzhen Power Plant proposed a target of realizing “the best year of safe production” and achieved the good performance through executing effective measures.

Strengthen the equipment management and maintenance, and improve the reliability of equipment.

Fengzhen Power Plant greatly executed the special activities of equipment management and maintenance, and successively completed over 100 main equipment renovation projects and thermal power system optimization projects, after which, all the renovated equipments are put into operation and have excellent running status. Furthermore, Fengzhen Power Plant organized professional personnel to solve the equipment problems with high frequency, thus the hidden dangers as leakage of the boiler water-cooling wall tube, over heater, reheater and coal economizer, as well as breakdown of water pump, were effectively controlled. The four tubes of boiler did not encounter the leakage problem within one year, and the breakdown times of the water pump was decreased by 60% compared with last year, and this ensured the safe and stable running of the





unit and improved the economic efficiency of the unit. With the gradual improvement of the intrinsic safety level of the equipment, the coal consumption for power supply was decreased by 24g/kwh in the past three years, and it totally saved coal of 132000tons.

Pay attention to team building, and strengthen the foundation of safe production. Fengzhen Power Plant strives to enhance quality management of the team. Each team keeps records of safety, energy conserving, sci-tech, modern management, and training, etc., and writes down in detail the work process to ensure each equipment has its complete record account. Fengzhen Power Plant organizes various skill trainings, so as to gradually improve the theoretical level and practical work capacity of the employees. Fengzhen Power Plant deeply executes the activity to create “work teams with zero breach of regulations”, establishes the long effect mechanism for fighting rule-breach, and in the whole year it totally established 68 “work teams with zero breach of regulations”, accounting for 62% of its total teams. Maintenance team of Fengzhen Power Plant was successively titled as Excellent Work Group in 2008 and 2009.

Firmly stick to the concept of broad-sense safety, and create the characteristic safety culture. At the management level, Fengzhen

Power Plant persisted in the concept of doing safety work with care and love for employees, and at the employee level, it advocated the safety concept that “Safety is love, responsibility and right”. Thus the managers and the employees can realize mutual understanding and support and everybody strives to become the employee featuring in “concern, care, caution, precision and dedication” to constitute the good safety circumference. The employee also created the Safe Operation Song as: Carefully supervise the panel with parameter clearly viewed; Don’t be frightened when facing accidents; Firmly remember the regulation and countermeasures.... In 2009, 49 persons were awarded the Prize for zero-error in 1000 times’ operation.

Through the persistent effort, Fengzhen Power Plant realized the target set at the beginning of the year, and improved the performance of safe production. It was awarded the titles of “Contribution Prize for Reliability of Equipment” by North United Power Co., Ltd. and “Advanced Unit on Production safety” by the group company. Besides, the building of two civilizations of the enterprise was improved, and thus Fengzhen Power Plant has win the title of “National Civilized Organization”.





2 Environmental Responsibility

Energy Conservation, Emission Reduction, and Green Development

Events

On 6 July, Huaneng Tianjin IGCC demonstration power plant, China's first IGCC project with independent development, design, manufacturing and construction officially started construction.

On 10 July, the Huaneng Fuxin Wind Farm (Phase II Project), the biggest individual wind farm in China was connected to grid for power generation. Its installed capacity is 300MW.

On 21 September, No.1 Unit of Huaneng Changchun Biomass Cogeneration Power Plant, the Company's first biomass demonstration project, was put into operation.

On 24 October, No.1 Unit, independently developed by China, the first home made 660 MW supercritical generating unit with tower type lignite boiler was put into operation in Huaneng Jiutai Power Plant.

On 30 Dec, the world's biggest CO₂ Capture System with 100,000 ton/year was put into operation in Shanghai Shidongkou No.2 Plant.



■ ■ Concept of Energy Conservation and Environmental Protection

Green development is indispensable to sustainable development. To promote green development, we should stick to the industrial policy of energy conservation and emission reduction, optimize the power sources structure, and develop highly efficient and clean energy. We should also promote scientific and technological innovations, improve the efficiency of resource utilization, and transform the development mode, so as to create an energy-saving and environmentally-friendly company.

■ ■ Objectives in Energy Conservation and Environmental Protection

To realize the coal consumption rate of 330.09g/kWh.

To achieve the annual objective set by the National Development and Reform Commission and Ministry of Environmental Protection during 11th Five-Year Plan in **Responsibility Agreement on Energy Conservation, Responsibility Agreement on SO₂ Emission Reduction, and Responsibility Agreement on Shutdown of Small Coal-fired Power Unit.**

To establish 9-10 energy-conserving and environment-friendly coal-fired power plants with all key technical and economic indicators reaching top level in China and advanced level in the world.

■ ■ Measures of Energy Conservation and Environmental Protection

Strengthening Energy Conservation and Environmental Protection Management

• Organizational Leadership

Huaneng's three-level management system on energy conservation and emission reduction comprises of the group company, regional and industrial companies, and grassroots enterprises. The President heads the leadership group overseeing all aspects of energy conservation and emission reduction work, arranges our energy conservation and emission reduction work, and coordinates and resolves all major issues. The leader of each subsidiary enterprise is responsible for energy conservation and emission reduction within the enterprise, organizing and implementing the energy conservation and emission reduction objectives.

• Supervision and Management

Strictly enforce the "veto system". All CHNG subsidiaries failing to meet annual energy conservation and environmental protection objectives and requirements will have their increase of total wages for that year cancelled. Such enterprises will also be prevented from qualifying for a "Four Good Management Team" award and other honorary awards from the Company, and the leaders of such enterprises will be held accountable.

CHNG strictly supervises the implementation of the "Three Synchronizations" on environmental protection for all newly-constructed projects and checks all relevant issues at each stage of the desulphurization system, including checking the system's design, equipment, selection and construction. Reports are filed promptly in order to ensure timely corrections and to ensure that all newly built projects meet national environmental protection requirements.

CHNG strengthens its tracking management system to verify SO₂ emission reduction and ensure that the desulphurization projects on existing units be



Investigation of Company leader in Huaneng Qinling Power Plant

put into operation on time. The Company strengthens the maintenance, supervision and inspection of the desulphurization facilities to ensure stable and safe operation of all environmental protection facilities, such as the desulphurization facilities and CEMS (flue gas online monitoring system).

• Institutional Construction

CHNG compiled **Energy Conserving Management Method (trial)**, **Environmental Protection Management Method (trial)**, **Selection and Appraisal Method for Advanced Unit of Energy Conservation and Environmental Protection**, and **Temporal Method on Punishment for Activities against Environmental Protection Law and Disciplines** to further clarify the institutions and responsibilities of the Company's management on energy conservation and environmental protection at all levels, and to regulate the management, monitoring, rewards and appraisal on energy conservation and environmental protection in the process of construction and operation.



CHNG leader visited Huaneng Exhibition Stand

• Energy Consumption Benchmarking

The company deeply carries out activity on improving energy consumption indicators, makes stricter indices criterion, and takes the advanced units of the same type as benchmark, so as to find the gap and make improvement. We regularly publicize the ranking of different units according to the index of energy consumption and environmental protection. We organize thematic meetings and coordination meetings on energy conservation and energy consumption. To ensure the leading position of energy consumption indices of the outstanding units, we optimize the operations and fuel purchase process, and make improvement on defects. In 2009, the coal consumption rate in 17 power plants dropped more than 10g/kWh compared to 2008.

Great Efforts in the Development of Clean Energy

CHNG has significantly increased its hydropower and wind power production. In 2009, 31% of the newly constructed installed capacity was from clean energy, representing an increase of 3.49%, compared to 2008. At the end of 2009, clean energy accounted for 15% of CHNG's total installed capacity, hydropower and wind power accounted for 8.23% and 2.58% respectively of CHNG's total installed capacity.

• Hydropower

We continued to speed up development of hydropower. We pragmatically carried our development at the Lanchangjiang River areas, and the Gongguoqiao Hydropower Plant was approved for commencement. The Jinghong Hydropower Plant was built and put into operation, the Xiaowan Hydropower Plant was put into operation a year ahead of schedule, the Baoxinghe and Fujiang Hydropower of Sichuan was being developed in full scale, and Baoxing and Yinping Hydropower Plants were built and put into operation. In 2009, 3404MW hydropower generating units were put into operation, increasing 65.55% compared to 2008.

• Wind Power

We actively promote the construction of two types of wind farms, with scale efficiency and economic efficiency. The biggest single Wind farm in China, i.e., the Huaneng Fuxin phase2 300MW Wind Farm was built and put into operation in 2009, and the Wind Power Project of Hekou was also put into operation. Wind power bases in Baolongshan and Zhurihe of Tongniao have begun to take shape, and the construction of 500MW wind power base of

Jiuquan was commenced. In 2009, 1575MW wind power generating units were put into operation, increasing 140.86% compared to 2008.

• Nuclear Power

CHNG actively develops nuclear power. Huaneng Shandong Shidaowan high temperature gas cooled reactor demonstration power plant is basically ready to start construction. The Company also promotes the preliminary work of nuclear constructions in many regions such as Hainan.

• GreenGen

The Huaneng Tianjin IGCC Demonstration Power Plant, the first stage of our GreenGen program, formally started construction with the development of a 250 MW IGCC power generating unit. The company entered into a partnership agreement with US-based Peabody Energy Corporation for joining the GreenGen project, promoting China-U.S. clean energy cooperation.

• Biomass and Solar Photovoltaic Power Generation

The Company actively develop the technology of biomass and solar photovoltaic power generation. On 6 Dec, construction of the Huaneng Changchun Biomass Cogeneration Power Plant was finalized and put into operation. On 28 Dec, the phase I of 2 MW project at Shilin Photovoltaic Power Station was put into commercial operation. The total installed capacity for the project is 100MW.



China-U.S. Clean Energy Cooperation Signing Ceremony

Controlling the Emission of Pollutants

• Construction and Renovation of Desulphurization Equipment

In 2009, CHNG added 21.81 GW of new generating units equipped with desulphurization facilities. Till the end of 2009, generating units equipped with desulphurization facilities reached 81.48 GW. We have exceeded the objectives stated in the **Environmental Protection Responsibility Agreement** during the 11th Five-Year Plan period.

• Reducing Emission of Greenhouse Gas

CHNG actively promotes the application of CO₂ capture technology and has established the Huaneng Beijing Greenhouse Gas Capture and Treatment Laboratory, along with the Huaneng Shanghai Electric Greenhouse Gas Emission Reduction Research Center. The 3000 ton/year CO₂ Capture System in Huaneng Beijing Cogeneration Power Plant operated steadily. The 100,000 ton/year CO₂ Capture System was put into operation in Shanghai Shidongkou No.2 Plant.

• Comprehensive Utilization of Solid Waste

The company actively adopts the technology of fine coal and ash separation, coal grinding, combinations technology and re-utilization of desulphurization gypsum to gradually improve the integrated utilization rate of the byproducts such as fine coal ash, slag and desulphurization gypsum, etc., realizing the closed circulation of materials and high efficiency in resources utilization of the coal fired power plant. In 2009, the comprehensive utilization rate of slag and ash increased 7.21%, compared to 2008.



The Signing Ceremony of CHNG and Shanghai Electric Group Co. Greenhouse Gas Emission Reduction Research Center

Intensifying Efforts in Energy Conservation Renovation

CHNG implements national energy industry policies, and strengthens supervision on the shutdown of small coal-fired power units. In 2009, a total of 1385 MW of small coal-fired power units was shut down. CHNG shut down a total of 5190 MW of small coal-fired power units during the 11th Five-Year Plan, completing 206% of the task outlined in the **Responsibility Agreement on Shutdown of Small Coal-fired Power Unit**.

We actively adopt new technologies and new techniques for motor frequency conversion, boiler plasma ignition, micro oil ignition, and retrofit to flow passage of steam turbine. Therefore, coal consumption for power supply and service-power consumption rate of power plant were decreased, and economic value of generating units got improved.

Increase the Utilization Ratio of Water Resources

At CHNG we continually strengthen our management on water saving, and inspect water consumption for coal-fired power plants; we adhere to taking water from multiple sources and utilize desalination technology in the coastal region. We use recycled water as a cooling agent in our power plants and promote the Water Saving Cooperation Project in Sino-German Huaneng Dezhou Power Plant. The Project will save 10 million tons of water and reduce discharge of wastewater by 2 million tons after put into operation.



First home made 330 MW circulating fluidized bed boiler developed by Xi'an Thermal Power Research Institute Co.,Ltd.

Promoting Technological Innovation

• Innovation System

The Company speeds up the building of innovation system, further perfects three level sci-tech management system of group company, regional and industrial enterprises, grassroots enterprises, as well as the technological innovation system combining industrial, academic and research areas; it preliminarily establishes sci-tech innovation regulation and system, compiles **2010-2015 Medium and Long Term Sci-tech Development Planning**. It establishes and participates in three technical innovation strategic alliances of China thermal power generation industry, new generation coal chemical industry, and China wind power generation industry organized by Ministry of Science and Technology, etc. The construction of Beijing Talent Innovation Base is progressing smoothly. In 2009, the company was named as the National Innovative Enterprise.

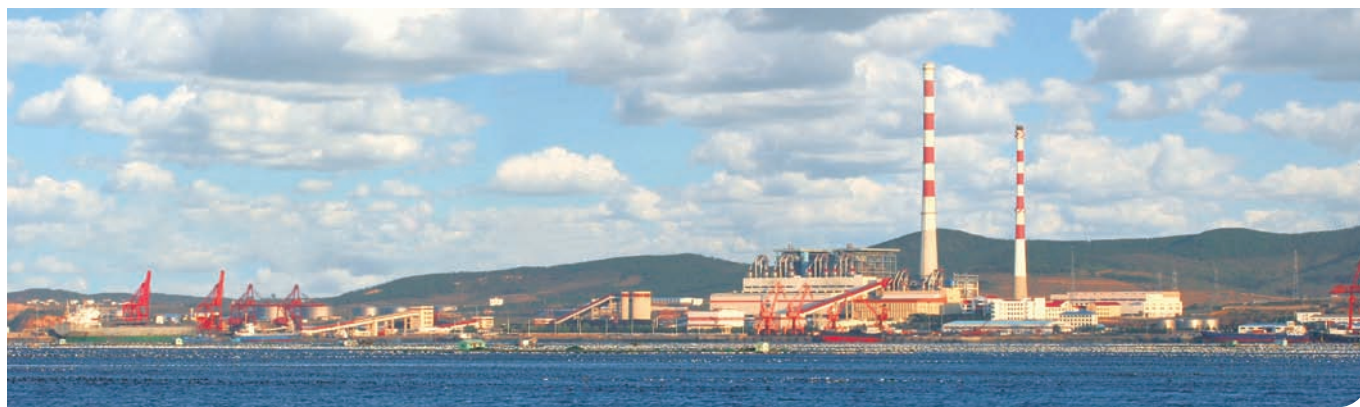
• Scientific Research Program

The company actively executed the research on main and key projects of China. The 250 MW IGCC Demonstration Power Plant, one project of

national 12th Five-Year Plan starts construction. We promote the research on technologies of CO₂ capture of large scale coal-fired power plant, IGCC, ultra supercritical power generating unit, large scale brown coal gasification with near zero emission coal base. In 2009, the company gained 13 awards from Chinese Power Technology, including two first prize, and gained 13 authorized patents.

• Exchange and Cooperation

The company carries out cooperation with related scientific research institutions both at home and abroad. Xi'an Thermal Power Research Institute Co.,Ltd. entered into license agreement of coal gasification technology with Future Fuels Company of USA, and the Two-phase Coal Powder Pressurized Gasification technology with independent intellectual property right of Xi'an Thermal Power Research Institute Co.,Ltd. shall be used for IGCC power plant in USA.



Huaneng Weihai Power Plant



Development of CDM Project

The company entered into memorandum of understanding on Clean Development Mechanism (CDM) cooperation with Asian Development Bank, to carry out application work of CDM. In 2009, CDM projects such as Hainan Wenchang Wind Power, Henan Zhouwan combustion engine, and Tongliao wind power phase2, etc., were successfully registered in UN.

Protection of Biological Diversity

During construction of hydropower plant in Lancangjiang upstream, the company stuck to the environmental protection concept of “pay equal attention to development and protection to build up the ecological civilization”, and strived to realize the harmonious development of hydropower building along with the ecological environment and local economy and society. We carried out supervision work to environment, conservation of soil and water, ecology, public health, and climate etc., executed measures of ecological recovery and conservation of water and soil. We built up five protection points of transplantation of valuable and rare plants with land occupancy of 400mu, about 35000 valuable and rare plants were



Huaneng Tongliao Baolongshan Wind Farm

transplanted; built up the feed base of green peacock and elephant, and rescue and protection station of valuable and rare animals; executed the transplantation and protection work of the valuable and rare plants in the flooding area of the reservoir as Terminalia myriocarpa and bastard mahogany; speeded up the building of the fish category breeding station and waste landfill yard.

Performances of Energy Conservation and Environmental Protection

It realized the coal consumption for power supply of 327.7g/kWh, down by 5.89g/kWh, compared to 2008, service-power consumption rate of power plant 5.61% down by 0.29%, it continually maintained the leading level in the industry, and 19 power plants listed in the Energy Conserving Action of 1000 Enterprises realized the energy conserving quantity of 1.737 million tons of standard coal, and realized 214% of energy conserving for the 11th Five-Year Plan; the installed capacity of generating units equipped with desulphurization facilities reached 81.48 GW, all generating units

planned to equip with desulphurization facilities reached the objectives, and realized 165% of the objectives stated in **Responsibility Agreement on Energy Conservation** during 11th Five-Year Plan; in 2009, a total of 1385 MW of small coal-fired power units was shut down. CHNG shut down a total of 5190 MW of small coal-fired power units during the 11th Five-Year Plan, completing 206% of the task outlined in the **Responsibility Agreement on Shutdown of Small Coal-fired Power Unit**.

Overview of Energy Conservation and Emission Reduction Indices from 2005-2009

Item	Unit	2005	2006	2007	2008	2009
Coal consumption for power supply	g/kWh	345.78	344.87	337.37	333.59	327.70
Service-power consumption rate of power plant	%	5.79	5.91	5.88	5.90	5.61
Water consumption for unit power generation	1000g/kWh	1.65	1.47	1.33	1.37	1.34
Emission of SO ₂	g/kWh	5.58	5.12	3.93	3.33	2.41
Comprehensive utilization rate of slag and ash	%	-	60.80	68.30	63.03	70.24



CASE STUDY

Technological Innovation Promotes Green Development

—Huaneng Beijing Cogeneration Power Plant Establishing Model Company in Energy Conservation and Environmental Protection

Huaneng Beijing Cogeneration Power Plant was the only power plant in China, which combines the technology of CO₂ capture, desulfurization, denitration, urban sewage water utilization, poly-generation of power, cool and heat. It is China's top ranking cogeneration power plant as well as the model plant of CHNG. Beijing Cogeneration Power Plant has the installed capacity of 845MW, accounting for 28% of the total thermal power installed capacity of Beijing, and can ensure 10% power supply, 70% steam supply and 30% heat supply of Beijing. It is the supporting force of Beijing's power supply and heat supply.

Beijing Cogeneration Power Plant has carried out Huaneng's mission of Three-Color Corporate Culture since it was founded. It aims at creating a resource-effective and environment-friendly company, exploring the ideas of energy conservation and emission reduction, innovating new ways of environment protection, strengthening the comprehensive management of pollutant, and executing environmental management and supervision. The

economic, technology and environmental protection indices all meet the international advanced level. It becomes the model of Chinese companies in green development.

Advanced technology, high efficiency, and energy conservation

Beijing Cogeneration Power Plant adopts the advanced technology of poly-generation of power, cool and heat in domestic companies, with average thermal efficiency over 60% for the whole year, which is about 20% higher than that of the conventional condensed steam power plant. The coal consumption rate of the plant is 281.65g/kWh, leading in the same units. This technology could save 400,000 tons of standard coal per year, and has totally saved 5000,000 tons of standard coal since it was put into operation.

Recycling sewage water and water saving

Beijing Cogeneration Power Plant is the first company in China that reuse the sewage water in urban areas. It invested about 50million RMB to build sewage water system, with maximum water flow of 2200ton/hour, and minimum water flow of 800ton/hour. 90% of the recycled water flows into the recycled cooling water system. Based on the plant's power generation





of five billion kWh per year, it saves about 12 million square meters of fresh water per year, which equals to twice the water storage of Kunming Lake, relieving the water shortage of Beijing and achieving great social benefits.

Comprehensive control with great effects

First, control of SO₂. In desulfurization system, it was the first to import the world leading technology of the chimney cooling tower integration, which simplifies the process of flue gas system and improve the energy efficiency. According to supervision report of 2009, the desulfurization efficiency was over 90%, the SO₂ emission concentration was reduced to 80mg/m³ after desulfurization.

Second, control of nitrogen oxides. It adopts low nitrogen combustion technology to divide the burning air in the boiler into three levels, about 80% of the air is mixed with fuel to burn, which reduces the generation of nitrogen oxides. Then it fills up by 20% air to comprehensively combust the remaining fuel. Finally, small amount of air is used to combust the flammable content in the flue gas to the greatest extent, which greatly reduce the emission of nitrogen oxides. After the denitration system put into operation, the 2009 supervision report shows that the emission concentration of the nitrogen oxides in the boiler is reduced to below 100mg/m³.

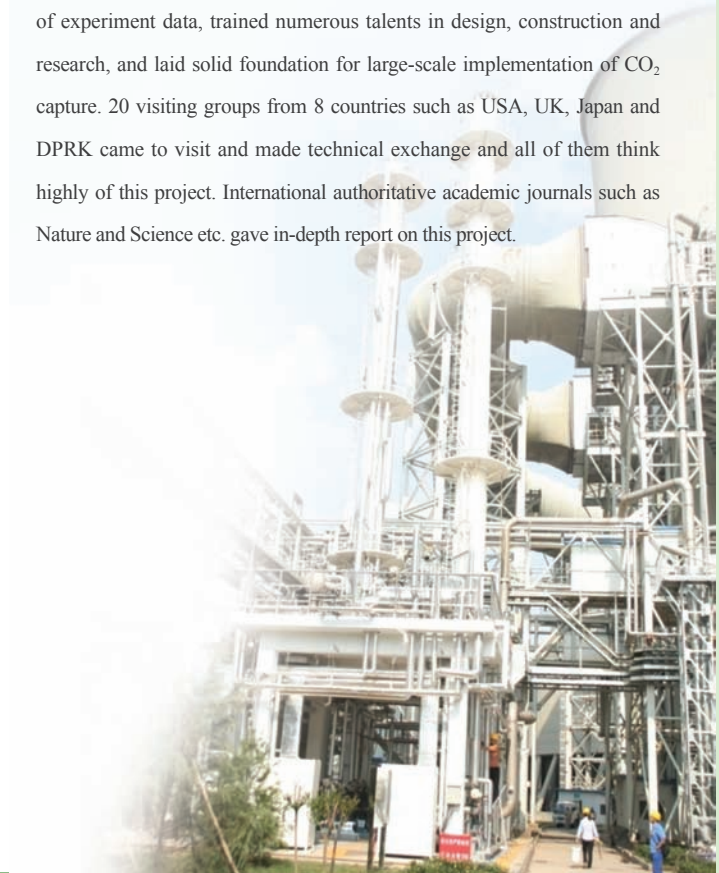
Third, control of dust. The technology of slag tapping and flying ash re-burning makes 65% of the flue gas and dust become liquid slag, greatly reducing the emission of smoke and dust. Furthermore, each boiler was equipped with two sets of four electric field high efficiency electrostatic precipitators. The 2009 supervision report indicates that the smoke and dust emission concentration was lower than 20mg/normal m³, at top level in domestic technology.

Fourth, environmental management. The power plant invested 38 million RMB to make renovation of the coal yard. We built coal shed to cover the construction site, with 210 meters long, 120 meters wide and 44 meters high, which is the largest span net-structure shed in China. The coal shed thoroughly solve the pollution problem of dust in open-air coal ground. In addition, the plant makes 100% comprehensive use of the ash, slag and ash and gypsum, further decreasing pollution to the environment

Actively implementing emission reduction to undertake the responsibility

On July 16, 2008, the first CO₂ capture demonstration project in China with annual capture capacity of 3000 tons was built up and put into production in Beijing Cogeneration Power Plant. This project was one of the international cooperation project signed by Chinese and Australian government, Joint Statement on Climate Change and Energy Issue in 2007. It is the demonstration project assigned by the National Energy Bureau. This project adopts the MEA (compound amine) technology to recover the flue gas, which was innovated independently by CHNG. This technology captures the CO₂ with concentration over 99% in the flue gas where the CO₂ concentration is about 13%. After the refining system, it finally produces CO₂ product. The company owns independent intellectual property rights of key technology.

Since it was put into operation in 2008, the project runs smoothly, totally capturing 3500 tons of CO₂ with purity of 99.997%, achieving good economic and social benefit. Furthermore, we have collected a large number of experiment data, trained numerous talents in design, construction and research, and laid solid foundation for large-scale implementation of CO₂ capture. 20 visiting groups from 8 countries such as USA, UK, Japan and DPRK came to visit and made technical exchange and all of them think highly of this project. International authoritative academic journals such as Nature and Science etc. gave in-depth report on this project.





3 Economic Responsibility

Intensive Operation and Healthy Development

Events

In April, CHNG was the first to turn loss into profit among Chinese power generation enterprises.

On 8 July, the *Fortune* Magazine issued 2009 Fortune 500 list and CHNG ranked 425.

On 29 October, Huaneng Yuhuan Power Plant was awarded "100 Classic & Excellent Projects" of the 60th anniversary of the founding of the People's Republic of China.

On 23 December, CHNG's installed capacity exceeded 100 GW.

On 31 December, CHNG acquired the Luneng Coal and Power Integration Project and its ancillary port-transportation assets.



■ Operational Concept

Healthy development is a strong support for sustainable development. To achieve healthy development, we must persist in the modern concept of intensive operation and operate in compliance with all laws and regulations. We shall expand our operational scale, improve operational quality and enhance profitability. We must realize value preservation and appreciation of state-owned assets and continue to build CHNG into a highly efficient company that benefits all.

■ Operational Objectives

To achieve sales revenue of RMB 170 billion Yuan.

To realize annual performance assessment objectives assigned by State-owned Assets Supervision and Administration Commission (SASAC).

To achieve 383.6 billion kWh power output, achieve coal production of 27.7 million tons; 10 GW of power projects and 15 million ton/year coal project get approval.

To ensure that the installed capacity of new power projects reaches 6520 MW and that the production capacity of new coal mine projects reaches 15 million ton/ year.

To ensure that the installed capacity of power generation breaks through 10 GW, and that the production capacity of new coal mines exceeds 8 million ton/ year.

■ Operational Measures

Perfecting Management Systems —

• Performance Management

We established **Interim Provisions for Performance Management** and achieved “Four Major Performances” in safety, operation, development and Party building. We also perfected our incentive and constraint mechanism so as to mobilize the enthusiasm of our corporate leaders and employees, and enhance competitiveness, profitability and development. Moreover, all the employees in our company were required to sign the Responsibility Agreement of Performance Objectives, thus realizing the performance responsibility system of “carry out assessment level upon level, enhance responsibility level upon level and link incentives level upon level”.

• Budget Management

We developed **Interim Provisions for Budget and Comprehensive Plan Management** and a series of management systems, established a comprehensive budget management system with financial budget as its basis and realized standardization and institutionalization. In 2009, by organizing all kinds of resources and coordinating operation and development, the budget management system provided guarantees for implementing our strategy and achieving annual targets.



Investigation of Company leader in Huaneng Jinling Power Plant

• Comprehensive Risk Management

We set up a leading group for comprehensive risk management , formulated the **Comprehensive Risk Management Method** and **Comprehensive Risk Management Guidelines** and strengthened risk management and related protection on major risks. In addition, we organized relevant regional and industrial companies to conduct an annual risk evaluation. Based on comprehensive analysis of risk management reports we assessed annual major risks, proposed risk management strategies and solutions, clarified the division of risk management tasks and formed a comprehensive risk management annual report.

• Benchmarking Management

We formulated *Interim Measures for Benchmarking*, perfected all benchmarking mechanisms of the Group Company, the regional and industrial companies, and the grass-root enterprises, and established a system of benchmarking indexes according to management requirements. In 2009, we released examples of “shining enterprise” and “benchmarking values”, focused on the internal and external benchmarking of our main business indexes, and introduced a benchmarking mechanism into the budget management and performance assessment.

Enhancing Marketing Models

• Striving to Expand Power Market

In 2009, we focused on improving the utilization hours of power generation equipment to further strengthen research on power supply-demand situations and related policies, and seized opportunities related to additional production capacity. We continue to apply the state energy-saving generation dispatching model and local alternative energy policies to take full advantage of the coal-fired power units featuring with large capacity, high parameter, and low energy consumption and thus increase power generation capacity; enhance the optimization of power consumption of all power plants in all regions, and increase the transfer of power consumption from small coal-fired power units which consume high levels of energy to larger units with low-energy consumption.

In 2009, CHNG led China in average utilizing hours of units and power output. Huaneng Power International Inc. and other organizations exceeded annual targets.

• Strengthening Recovering Bills of Electricity

We have intensified our efforts to recover electricity bills and old debts in key areas, and managed strictly according to the contract and achieved a recovery rate of 100% for all annual cumulative electricity bills.

• Cost Control

We have strengthened the “closed-loop fuel management” process, optimized the supply structure, developed a special audit investigation of coal and performance monitoring, and reduced fuel costs. In 2009, the purchase unit price of standard coal dropped by RMB30.4 Yuan /ton. Nevertheless, CHNG strictly controlled its expenses, and saved RMB 570 million Yuan in four types of expenses.



Investigation of Company leader in Guicheng Trust

• Striving for Reasonable Electricity Prices

We actively communicated with the government and the tariff administrative department, and adhered to the national tariff policies to ensure that all units that fall below benchmark levels can be improved as soon as possible and that all new units achieve the benchmark price upon commencement of business operations. Some organizations’ tariff, such as approved tariff, the tariff of power output generated by units with desulfurization device and outgoing tariff, have all been implemented.



Marketing Working Conference





Speeding up Construction

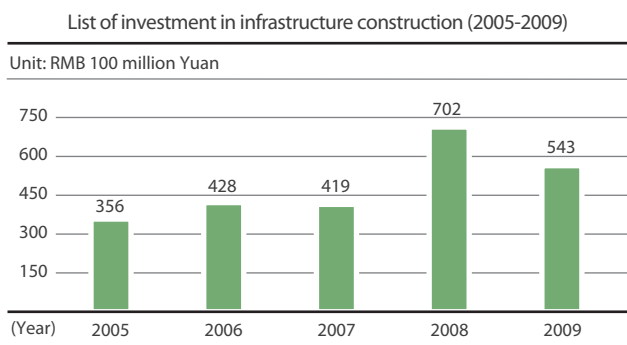
• Project Preparations

According to the strategic requirements of structure and layout optimization, CHNG has greatly improved the argumentation and approval of key projects. In 2009, approved power projects amounted to 11.22 GW, exceeding the planned annual target for the year. In total, 13 projects including the Pingliang Power Plant Project Phase II and the Shangdu Power Plant Project Phase III were honored as “2009 Advanced Unit in Project Preparation”.

• Infrastructure Construction Management

We have further strengthened our management system, and required that infrastructure construction projects must realize “high-quality, high-speed, low-cost” in order to ensure the timely completion and commissioning of new projects. We have compiled the *Interim Provisions for Infrastructure Construction Management* and a series of management systems to

better define the responsibilities of the Group Company, the regional and industrial companies and all project construction units, and have standardized the basic procedures of construction management. In 2009, the installed capacity of newly-commenced power projects reached 12.966 GW, and the installed capacity of new power generation units put into operation reached 16.15 GW, creating a new record for production capacity and achieving the goal of “11th Five-Year Plan” one year ahead of schedule. Huaneng Power International Inc., Huaneng Lancang River hydropower Co., Ltd. along with 13 other units, were honored as “2009 Advanced Unit for Infrastructure Construction Commissioning”. We compiled or revised design and construction standards of wind power and hydropower, with key economic and technology indicators better than national standards. In 2009, CHNG had 11 projects awarded the “Chinese Excellent Power Project Prize”, including 7 recipients of the “Silver Prize for Chinese Excellent Power Project”.



Equipment Installation and Debugging

List of projects awarded the Silver Prize for Chinese Excellent Power Project in 2009

Awardee	Name of Project	Capacity(MW)
Shanghai Combined Cycle Power Plant	F-class Gas Combined Cycle Unit Project	3×400
Yangliuqing Cogeneration Power Co., Ltd.	Phase IV	2×300
Shang'an Power Plant	Extension project Phase III	2×600
Qinbei Power Plant	Phase II	2×600
Jilin Tongyu Wind Power Farm	Wind Power Concession Project Phase I	100.5
Huitengxile Wind Power Farm	Wind Power Project	40.5
China Power Weihai Wind Power Farm	Wind Power Farm Project	49.5

• Capital Operation

In 2009, CHNG successfully acquired Luneng Diandong Coal and Power Integration Project and its ancillary port-transportation assets, including industries such as power generation, coal, port and shipping. This acquisition helps to enhance the guarantee of Huaneng power and coal supply and the capacity of production and delivery; it helps to expand development space and industrial chain; it's good for the optimization of energy structure and regional layout; Moreover, it has a great importance to the promotion of industrial structure adjustment.

We completed a second reorganization of the Huating Coal Group, acquiring 49% of its stake, a relative controlling percentage of its stock, thus laying the foundation for the construction of the East Gansu energy base. We acquired a number of small hydropower projects in Gansu and Hubei. CHNG succeeded in replacing assets in Inner Mongolia Huadian by introducing high-quality assets from the North United Power Co., Ltd., and established a solid foundation from which to protect the capital market image and explore potential financing of the Inner Mongolia Huadian.

Optimizing Power Structures

• Adjusting Power Sources Structure

In accordance with the concept of continually adjusting our power sources structure, CHNG continues to “strive to develop hydropower, actively develop nuclear power, and speed up the development of wind power”. In 2009, we accelerated the development of hydropower and wind power, advanced our preparations for conventional nuclear power projects, and increased the proportion and capacity of installed clean energy.

• Regional Layout Rationalization

Adapting to new situation of competition in power industry, we have strengthened regional development and expanded growth space. In 2009, we established a group of regional branches in Jiangsu, Hebei, etc., and made new progress in Guizhou and Qinghai, where there are still blanks in the development of Huaneng power business.

• Optimizing Generating Set Structure

Structural adjustments to our coal-fired power supply advanced in 2009. We developed supercritical and ultra-supercritical coal-fired power units with “high-parameter, large-capacity, high-efficiency and low-pollution”. Nine coal-fired power units with a capacity of more than 600MW came into operation, accounting for 63.3% of the company's total newly-constructed coal-fired installed capacity. We also promoted cogeneration projects throughout the year and commissioned 13 units which now account for 30.5% of the company's coal-fired installed capacity. By the end of 2009, we increased the quantity of 1000 MW units to 7, accounting for 33% of China's total 1000 MW ultra-supercritical units; the installed capacity from 600 MW or above coal-fired generating units account for 40.2%, an increase of 5.83% compared to 2008; the installed capacity from 300 MW or above coal-fired generating units account for 87%, an increase of 2.55% compared to 2008.



Company leader visited Luohuang Power Plant



Regional Companies Construction Forum



Guaranteeing Coal Supply

We regard the coal industry as the essential strategic one to enhance the overall strength and promote sustainable development. In order to consolidate the leading position of coal business, we further strengthen the development and construction of coal business. New coal production capacity reached 20.48 million ton/year in 2009, and production capacity reached 47.72 million ton/year, an increase of 75% over the previous year. The construction of major bases in East Gansu, West Inner Mongolia, East Inner Mongolia, Shanxi, Shaanxi and Xinjiang were in full swing, and four coal mines in Weijiamao, Linglu, Huajian and Liuyuanzi obtained approval.

We have optimized the development of transportation industry, promoted the construction of coal transportation channels and steadily improved the guarantee of coal supply. In 2009, the coal transportation channels



Company leader visited North United Power Co., Ltd.



Times No.1 Unloaded Coal at a Port

from Hulunbeier to Jiutai and Changchun No.4 Thermal Power Plant were opened, and new results in the construction of coal logistics system was achieved; the Liang Yi (Yimin - Yiershi) Railway was put into operation; the construction of invested railway projects (Xi-Ping, Tian Ping etc.) and port bases (Taicang, Haimen, Nanjing Tianchen Port etc.) were promoted; the right to develop the fifth 50 million ton and above port for coal transportation in Caofeidian was acquired. The controlled capacity of Times Shipping Company and Ruining Shipping Company reached more than 1.4 million deadweight tons, with a transport capacity of domestic coal of up to 15.49 million ton/year. In 2009, we supplied 25.5 million tons coal for Huaneng's power plants.

Strengthening Financial Support

• Deepening Capital Management

Through further strengthening the "revenue and expense" management with capital budget as its basis and Huaneng Finance Co., Ltd as its capital settlement platform, the capital centralization has been enhanced significantly; and through financial company to finance for Huaneng's enterprises, the utilization rate of stocked capital has also increased. Compared to the beginning of the year, the amount of stocked capital in the end of the year increased by 8%; the composite interest rate declined greatly compared with the average benchmark interest rate; saving the interest expense of RMB2.8 billion Yuan.

• Enhancing Fund Risk Prevention

We perfected the guarantee system of emergency response fund, established emergency response plan, and reinforced reporting system of significant fund matters, thus the fund risk was effectively prevented and the financial safety of the Group Company's operation was guaranteed.

• Improving Financial Platform Construction

In accordance with the requirements of “high starting point, steady steps and rapid development”, we have successfully completed the reorganization and set up of Guicheng Trust, achieved a steady transition from the old to new system, established a new salary and assessment system and a new operational management mechanism that adapted to industry competition, made a good start of realizing profit in its first operation year, and it became the new profit growth point in financial industry. We completed a capital increase in Yongcheng Insurance Co., Ltd. and introduced overseas strategic investors such as Canadian Fairfax Holdings, and simultaneously implemented an increase in domestic capital, with RMB600 million Yuan in total funds raised.

• Expanding Financing Channels

In order to guarantee fund demands of company’s development and realize good economic benefits, we have continued to open up financing

sources and innovate financing channels. We have continued to strengthen our strategic cooperation with the Bank of China and other state-owned commercial banks, so as to obtain sufficient bank financing; we have consolidated and enlarged the scale of bond financing and explored asset-backed securities financing; we have continued to develop the special financing of postal savings, insurance investment plan, trust loans, finance leases and other non-credit bond financing channels.

• Exploring Financial Innovation

We gradually promote research of financial innovation, and give full play to both advantages of our financial profession and functions of settlement and financing within Huaneng Finance Co., Ltd. We actively explore innovative financing tools and products such as creditor’s rights factoring, accounts receivable factoring and usufruct plan. We focus on the financial innovative business, effectively raising comprehensive operational benefit of capital and fund.

Implementing International Cooperation

We have developed extensive international cooperation to the benefit of our growing overseas business. Both Australia Power and Tuas Power Plant achieved good economic growth in 2009. China’s largest BOT hydropower project, the Myanmar-Shweli River Hydropower Plant, was put into operation, achieving profits in its first year. Tuas Power Plant also began construction of the Tembusu Multi-Utilities Complex; besides, the key technology of the clean coal-fired power with self-owned intellectual property rights –Coal Powder Pressurized Gasification technology was the first time introduced into western developed countries and international energy market.

Promoting Informatization Construction

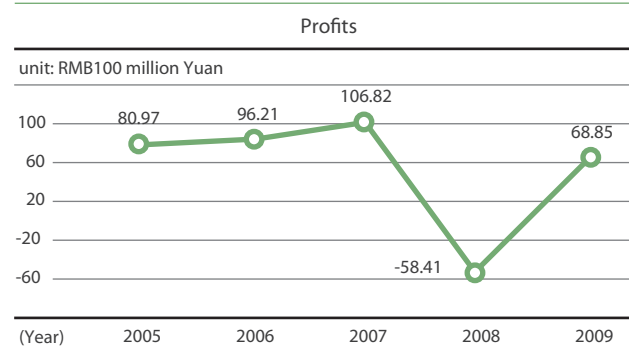
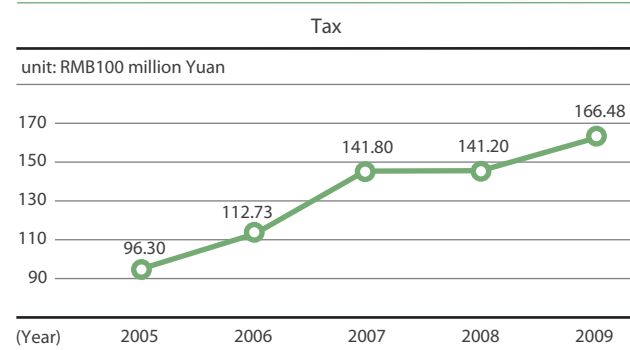
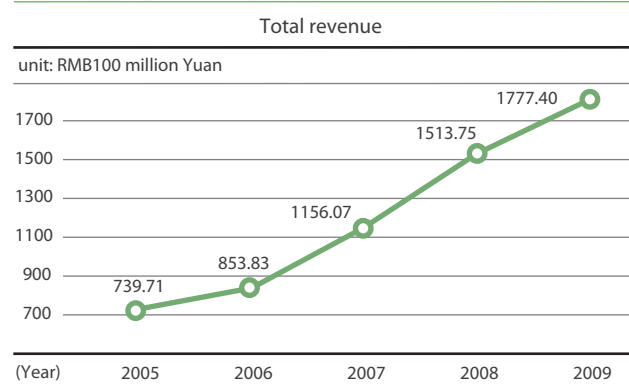
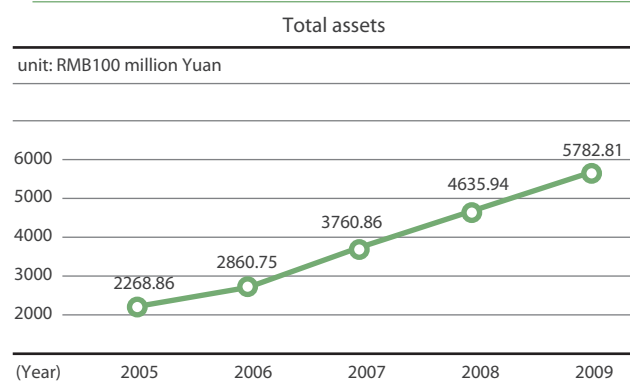
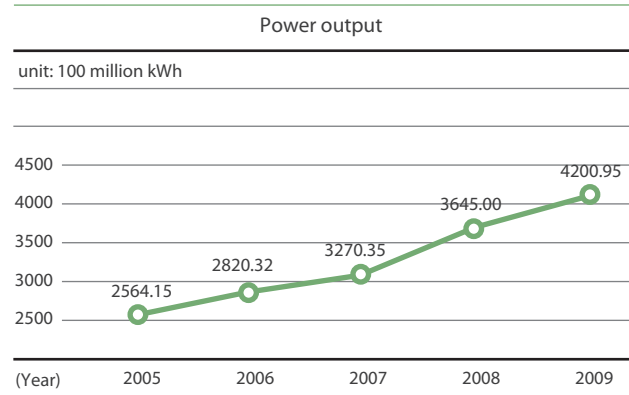
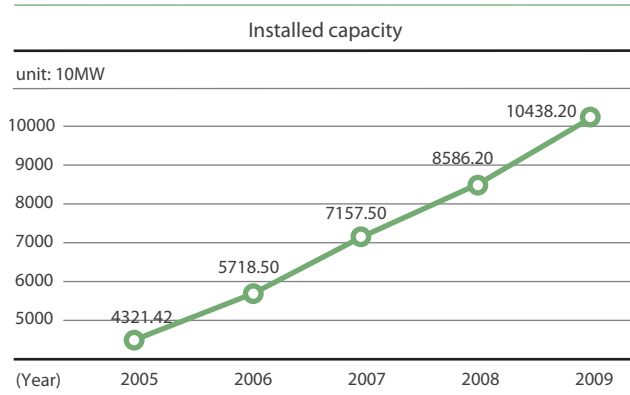
We integrated the informatization operating mechanism, set up the information center of China Huaneng Group, and realized centralized informatization management; we made positive progress on an integrated database and real-time monitoring system, promoted HR management system, successfully upgraded our OA system and boosted our internal and external networks. In the rating of central enterprises conducted by SASAC, our comprehensive scores, rating and ranking have shown remarkable improvements and achieved the “Improvement Plan” of the SASAC.





Operational Performances

Main Economic Indices (2005-2009)





CASE STUDY

Ensure the Leading Efficiency against the Depression

—Huaneng Yuhuan Power Plant made a steady increase in economic benefit

Located in Yuhuan County, Taizhou City, Zhejiang Province, Huaneng Yuhuan Power Plant is an important project to realize the localization by introducing the technique of ultra-supercritical units in the national “863” projects, as well as a state key project. According to its business plan, the plant will have 6×1000MW ultra-supercritical units. To date, four units have been completed and put into operation,

In 2009, facing global financial crisis and complicated economic situation at home and abroad, Huaneng Yuhuan Power Plant adopted various measures to create good environment outside and enhance management inside, thus making great economic effect with high-spirit and hard-working.

New breakthrough has been made in marketing work. In

2009, influenced by international financial crisis, the demand for electricity in Zhejiang Province decreased dramatically. Yuhuan Power Plant took several measures to overcome the difficulties, and thus accomplished the objective of power output through the joint effort of management and workers. Firstly, it developed external market and substituted other power plants to produce additional power output of 1.011 billion kWh, accounting for almost half of power output of its kind in Zhejiang Province. Secondly, the 500kv transfer station was put into operation one month ahead of schedule, which increased the quota of the plant’s installed capacity from 3.25 million KW to 3.5 million KW, equalling to an increase of a 0.1 billion kWh in annual power output. Thirdly, it made full use of the opportunity of generating units commissioning, so as to enhance the load rate of units and increase power output. Fourthly, it improved marketing information collecting channels, perfected the work of drawing up monthly power output plan and marketing analysis, established a marketing system of “daily follow-up, weekly benchmarking and monthly assessment”, and strengthened work mechanism of integrating marketing, operating, equipment management and others.

New advance has been made in reducing cost and increasing efficiency.





Through strengthening control of cost, dividing and implementing production objectives, establishing management model of integrating expense management and process management, reinforcing internal quota management, Yuhuan Power Plant completed the construction of business operation and management system with the comprehensive plan as the main part. Through carrying out the “Four Clean-ups” of cost, it eliminated the subcontracts in producing, repairing, maintenance, infrastructure construction, logistics and others. Through inviting public bidding and optimizing service contracts, it took effect control of the cost. Through signing contract of materials, propelling the “Repair & Recycling” of equipment, strengthening the localization of equipment, promoting the repertory ration management and other methods, it succeeded in reducing the total cost of the whole plant and the occupation of current funds. Besides, it further strengthened the fuel management, regarding the reasonable coal structure, the lowest coal price, the best shipping arrangement and the optimal inventory as the target, so as to realize cost-reduction and price-under-control.

New dimension has been opened up in management innovation. Yuhuan Power Plant brought forth new ideas in management mechanism and optimized management process. In terms of safety management, it aimed to ensure safety with zero accident. In terms of equipment management, it strived to realize stable operation of equipment and reduce unplanned outage. As to fuel management, the objective was to reduce cost and control inventory, as well as “reducing cost and inventory” was the objective of material management. In respect of operation management, it tried to control expenses and increase benefits. Production and marketing management had the objective of “realizing power output plan and optimizing index”.



Meanwhile, “ensuring enterprise stability and development” was the goal of comprehensive management, and enterprise should maintain its leading position with good achievements. By adhering all these working ideas, Yuhuan Power Plant took specific measures, thus accomplishing all tasks assigned by the Group Company.

In 2009, Yuhuan Power Plant overcame the adverse affects (such as decline in the power demand, increase of new power generation units put into operation within the province) brought about by the decline of macro economy, and its capacity of profitability became stronger and over-fulfilled the annual business objective. There were no unplanned outage in the whole year; the power generation units No.1, No.2 and No.3 realized the continual running for more than 100 days one by one; the equipment utilization rate were 1056 hours more than the average level in Zhejiang. In 2009, power output of Yuhuan Power Plant achieved 19.913 billion kWh; service-power consumption rate was 4.58 %, dropped by 0.59%; the coal consumption for power generation was 292.99 g/kWh, dropped by 4.89 g/kWh; the profit was in the forefront within the Group Company, realizing its annual profit target four months in advance.





4 Social Responsibility

Mutual Benefits and Win-Win for Harmonious Development

Events

On 28 April, Huaneng Lancang River Hydropower Co., Ltd. and Shangdou Power Plant were each awarded a "National May 1st Labor Merit Certificate".

On 2 May, the construction of the Huaneng Tuoshigan River Biedeli Hydropower Plant began. With an investment from CHNG of RMB 2.1 billion Yuan, it is the largest project in Xinjiang contributing to poverty alleviation.

On 26 August, the State Ministry of Science and Technology, the State-owned Assets Supervision and Administration Commission of the State Council, and the All China Federation of Trade Unions named CHNG a "National Innovation Enterprise".

On 19 September, CHNG was honored with the "2009 Special Award for Social Responsibility of Chinese Enterprises".

On 22 October, CHNG was awarded as an "Overseas High-quality Talent Innovation and Business Base" by the Human Resource Conciliation Panel of the Central Government.

On 20 December, CHNG was listed as one of the "Top 20 Independent Innovation Brands for the 60th anniversary of the founding of the People's Republic of China".



■ Social Responsibility Concept

Harmonious development is an important prerequisite for sustainable development. To achieve harmonious development, we must adhere to the basic principle of mutually beneficial cooperation, actively shoulder our social responsibility, strive to create both a favorable internal and external business environment and share the fruits of our development with our stakeholders, so as to promote the construction of a harmonious society and become a model corporate citizen.

■ Social Responsibility Objectives

- Be responsible to our employees to achieve common development.
- Be responsible to our clients and partners to achieve mutual success.
- Be responsible to the community in order to contribute to society and promote a harmonious society.

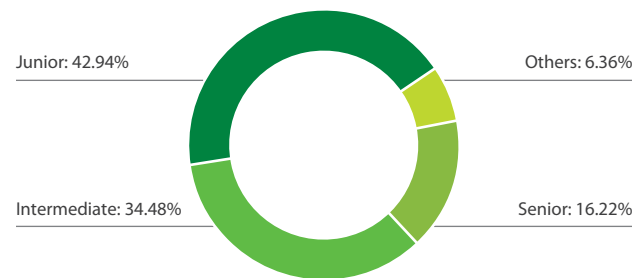
■ Social Responsibility Measures

Building Harmonious Labor Relations

We believe that our employees are central to our operational success and company development. We rely on them and do our best to stimulate and encourage their enthusiasm, their innovation and their creativity at work, and support them in sharing the results of innovation and development of the company.

By the end of 2009, we employed 129,992 people, of whom 47.37% have a college degrees or above. The number of senior professional technicians at CHNG accounts for 16.22% of all professional technicians, and 61.93% of all employees are under the age of 40. The ratio of males-to-females is 3.8:1 and 2.4:1 at the manager level.

Level of Professional Technicians



Employee Age distribution



A Poverty Alleviation Project in Xinjiang Started



Aid the construction of Hope Primary school



Company Leader Visited Myanmar-Shweli River Hydropower Plant

• Protecting Employee Rights and Interests

we stick to the scientific concept of “putting people first”, We always adhere to the concept of “people-oriented”, respect and protect legal rights and interests of employees. We strictly implemented **Labor Contract Law** and other related laws and regulations, fully enforced labor contract system. We developed We have implemented the Labor Contract Law and **Regulations on Paid Annual Leave of Employees** and other management rules and regulations, implemented a scientific mechanism for recruitment and promotion, and ensured the protection of all our employees’ legal rights and interests. In 2009, CHNG recruited 5,068 new employees, 55.17% of whom were university graduates.

We have developed **Interim Regulations for Integrating Performance Assessment and Total Payroll** and improved our payroll and salary management systems for subsidiary enterprise managers. We have also improved our Performance Management System by integrating different elements into the system such as indexes, assessments and salary distribution information. We strived to perfect our pay system by focusing on the value of positions, work performance and characteristics of various groups of employees.

In 2009, we made efforts on improving the effectiveness of trade unions in our regional and industry companies as well as workers congress, encouraged employee participation in our management systems and encouraged openness in operational affairs. The enrollment ratio of employees in trade unions at all subsidiary enterprises is 100%. Trade unions at all levels of CHNG take their responsibilities seriously, holding regular workers congress association meetings and signing all collective labor contracts on behalf of employees in order to protect their legal rights and interests.

• Promoting Employee Development

We recognize that the key to improving our company’s success is through developing our employees and cultivating the “Three Senior Levels” of talent –senior management talents, senior professional talents and senior skilled talents– in order to increase the success of our human resources and promote the sustainable development of our company.

In 2009, we strengthened the personnel reform system for business leaders, expanded internal competition for new positions. 40 managers at different level were involved into job rotation within the group’s headquarter and power plants.

We continue to perfect our training systems and internal mechanisms at all levels so as to strengthen the capacity of our leaders, professionals and technicians. We make full use of our educational platforms, including the Huaneng Education and Training Center and the Shanghai Electric Power Overhaul Training Center. In 2009, we updated our short-term special training programs and long-term education training programs, organized trainings for principals of Huaneng’s power plants and provided EMBA study opportunities for senior managers as well as distance learning for work team leaders. We also carried out team building activities within the whole group. In 2009, we signed an agreement with Xi’an Jiaotong University for training and development of nuclear power professionals, developed 2009 to 2015 Planning on team building of nuclear power professionals, and provided job certification training and occupational skills training for 340,000 employees and did occupational technical skill appraisals for 3,965 employees.

North United Power Co., Ltd. has implemented an appointment system for chief employee and chief engineer for four years in succession. This has promoted the career development of high-tech and skilled talents.



Employee Physical Examination



• Protecting Employee Health and Safety

We attached great importance to employees' health and safety. We have established a healthcare system, a pension system and a medical assistance program for coping with major diseases, and protected physical and mental health of our employees.

We strictly implemented the industrial standards and provisions on management of labor protection articles and equipments, conducted regularly inspection, maintenance and management to ensure their

safety and effectiveness. We provided annual physical examinations for all employees and periodic inspection of occupational diseases, gradually implemented the convalescence system for employees. We strengthened the occupational health care and workplace monitoring of occupational hazards, strived to improve working conditions, prevention and control of occupational diseases.

• Enriching Our Culture

In 2009, we celebrated the 60th anniversary of the founding of the People's Republic of China by holding, for the first time, a large-scale employee cultural and artistic performance, namely *"Love China, Love Huaneng"*. We carried out arts festival, knowledge competitions, poetry readings, essay and speech competitions, painting and photographic exhibition, workshops, literary salon, sports meeting and other activities with the topic of love our Party, our country and socialism. We participated in the national electricity essay competition as well as literary and artistic works

competition. They are organized to Commemorate the 30th anniversary of reform and opening up by China Electricity Association of Literary and Artistic and China Electric Power News. The dance program *"Exciting Xiaowan"* by Huaneng Lancang River Hydropower Co., Ltd. was selected to participate in the CCTV dance contest. It was also performed for the National Energy Conference.



Employee Cultural and Artistic Performance

Building Harmonious Partnerships

• Strengthening Regional Strategic Cooperation

We continue to strengthen strategic cooperation in key areas. In 2009, we signed cooperation agreements on regional construction and energy strategy with Qinghai, Tibet, Fujian, Zhejiang, Shanxi, Liaoning and Ningxia, and developed hydroelectric, thermal power, solar energy, wind power, nuclear power, and coal electricity integration power projects.

• Actively Promoting the Development of Power Industry

We regard high efficiency and environmental protection as two major drivers of innovation. We have made, among other things, breakthroughs in large-scale coal gasification, the capture and treatment of carbon dioxide, and high temperature gas-cooled reactor demonstration nuclear power plant technologies. Our breakthroughs have contributed to the development of the national power generation industry. In 2009, we obtained 13 technical awards in China and 13 notable patents, and were also named a "National Innovation Enterprise". We have played a key role among state-owned enterprises in the construction of China's national innovation system.

We implemented the following standards: *the Guidance on Wind Power Plant Engineering Design, the Management Regulations of Wind Power Plants*

Engineering Construction, and the Assessment Standard on Wind Power Plants Engineering Construction, which formed the first comprehensive standard system for wind power construction amongst domestic power generation groups.

We continue to participate in the formulation of *the Amendment of Renewable Energy Law* and other relative laws and regulations, as well as promoting academic communication and cooperation with leading university science departments such as Tsinghua University. We also participate in internal and external industry trainings and seminars.

• Strengthening the Industry's Value Chain

We have worked on our communication and cooperation with coal suppliers, equipment manufacturers and financial institutions to deal with various difficulties and challenges in partnership, expanded areas for cooperation, and improved relationships.

In 2009, we expanded our partnerships with Shenhua Group, China Coal, Datong Coal Mine, and Shanxi Coking Coal Group. We signed agreements with six organizations including the Railway Ministry, the China National Chemical Engineering Group Corporation, and Petro China Company limited. One of our focus areas this year was partnerships in coal transportation and the coal chemical industry.

Building Harmonious Community Relations

• Guaranteeing Power Supply

In 2009, we faced a number of challenges in providing a continuous and steady supply of energy, most notably in meeting peak demands for electricity in the summer, during both floods and typhoon, during China's 60th anniversary celebrations, and during heavy snowstorms. We met our obligations to society by guaranteeing a constant and safe supply of power and coal. During each of these challenges, we suffered no shortage of coal nor did we shutdown any of our power plants, thus ensuring we were able to provide reliable energy to local power grids, and greatly contribute to the stability and fast development of the national economy.

The operation of the Huaneng Ruijin Power Plant Phase I Project addressed the need for a strong power supply in the old revolutionary base area in Jiangxi, and the Huaneng Gezhen Key Water Control Project started operation 10 months ahead of schedule providing benefits to local people at the earliest opportunity possible.



Employee outward development training



• **Participating in Public Welfare Efforts**

As part of our social responsibility commitments, we have worked on poverty alleviation and aid projects in Xinjiang and Tibet, widely praised by stakeholders. In 2009, we donated approximately RMB 31.5 million to disaster relief, RMB 4.8 million to poverty alleviation, RMB 7 million to development in Xinjiang, RMB 10 million to power production in Tibet, and RMB 21.38 million on other social welfare projects.

• **Participating in Construction of New Rural Communities**

CHNG's power plants support economic development of the communities and donated RMB 115.42 million on constructing new rural and pastoral communities. We continued to participate in the "100-1,000-10,000" Campaign, the "Project of Enriching and Benefiting the Farmers", the "Rainbow Grants" project and other activities as part of our overall efforts to "Construct a power station, stimulate the local economy, protect the local environment and promote complete harmony".

Huaneng Sichuan Hydropower Co. Ltd has donated RMB 3.8 million on country road and bridge construction at Baoxing river basin. Qiaoqi hydro power station constructed new houses for the Tibetan migrants and was praised by local government and people.

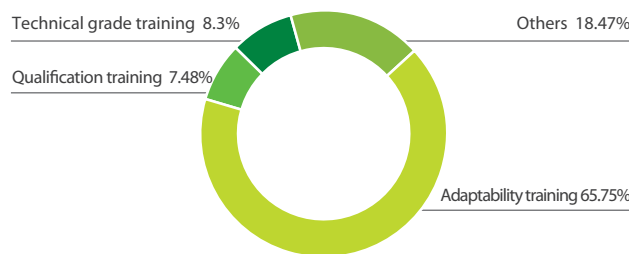
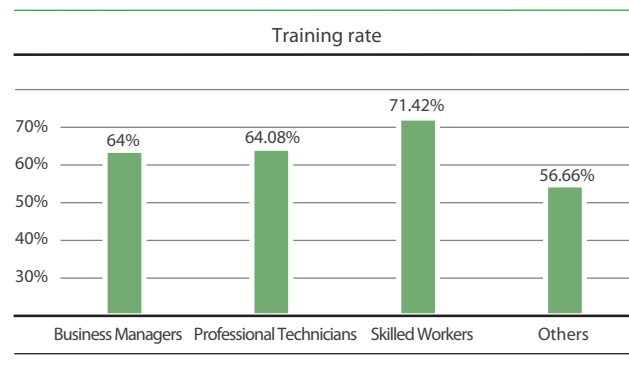


Donation



■ **Social Responsibility Performances**

Employee Training in 2009



Awards	No.
Top 20 Independent Innovation Brands for the 60 th Anniversary of the founding of People's Republic of China	1
National Innovation Enterprise	1
National May 1 st Labor Merit Certificate Advanced Union of National Energy Chemical Trade Union	2
Advanced Collectivity of Central Enterprises	5
Advanced Collectivity on Ideological and Political Works of Central Enterprises	3
Demonstration Collectivity of National Unity and Progress	1
2009 Special Award for Social Responsibility of Chinese Enterprises	1
Practice Cases of Excellent Social Reasonability for Central Enterprises	2
Leading Enterprise Award of "Golden Bee 2009 Excellent CSR Report"	1
Overseas High-quality Talents Innovation and Business Bases	1
Excellent Labor Union of National Energy Chemical Labor Union	1
National Advanced Unit in the Middle Period of "55" Legal Knowledge Promotion	1
"Special Contribution Award" of Hope Project	1
Excellent Organization Award for Employee Skills Contest of Central Enterprises	1
National Worker Pioneer	3
National Labor Medal	4
Model Worker of Central Enterprises	8
Excellent Ideological and Political Worker of Central Enterprises	3
Technical Expert of Central Enterprises	11
Excellent Union Leader of Energy Chemical Labor Union	2



CASE STUDY

Singing an Ode to Huaneng on the Top of the Tibetan Plateau

—Tibetans praised CHNG for meeting their urgent needs for power

For years, the rapid economic and social development and rising living standards in Tibet have produced a rapid increase in the demand for energy, especially for power. The existing infrastructure is unable to meet demand and has led to severe power shortages in the Tibetan Power Grid. Every winter, in order to guarantee power for farmers and herdsmen, the power available for cement or mining companies is restricted and the business sector is faced with stoppages during times of peak energy usage. A power shortage of 100,000 KW has seriously affected the life of the Tibetan people, and has become a bottleneck to local economic and social development.

The shortage of power in Tibet has been identified as a priority that needs to be addressed by the Communist Party and the Central Government. Addressing the shortage is a high priority for the National Development and Reform Commission and the National Energy Bureau. CHNG has strived to meet the needs of the Tibetan people and to meet the needs for economic development and social stability. We invested RMB 0.3 billion constructing a 100,000 KW diesel

generator on the Tibetan Plateau at an altitude of 4,000 meters.

On 11 September 2009, as construction began it disturbed the tranquility of the Lhasa Duilongqu River; the temperature changed so much between night and day that at night the temperature dropped to as much as 15 degrees below zero; the humidity was incredibly dry at only 14% and the proportion of oxygen in the air was less than half of that in the surrounding areas; the human heartbeat races up to 100 beats per minute the first time one reaches the plateau. The cold and high altitudes were just some of the immediate challenges faced by our employees working in Tibet.

Driven on by their belief in “providing power to serve the Tibetan people”, our employees worked day and night for an entire week to overcome the difficult construction conditions on the plateau, the cold climate, and difficulties related to construction in late October in Tibet. Our employees worked with the construction team in shifts and employed various methods to overcome the difficulties involved in procuring equipment from different places, dismantling equipment, transportation, a short construction period, and rough winter conditions. In addition, we were working day and night and adapting specific construction methods in order to suit the conditions, such as grouting with warm water and covering concrete with thick electric blankets and plastic film to stop it freezing. In order to get the project done quickly,





safely and to high quality, we completed the basic preparation for all the diesel engines in the main plant within 33 days and finished the construction of the key engineering components before winter to ensure the project remained on track.

We have made great strides in developing “CHNG’s Quality” using our scientific expertise to build the power project into a first-class, high-quality, turn-key project involving a number of specific measures: The main plant was transformed from concrete into a full steel structure; an additional investment of RMB 10 million was made to shorten the construction period by 45 days; the main plant was designed to withstand seismic activity up to 9 on the Richter scale; the outer wall of the main plant utilizes a laminated heat-insulating panel to save energy; two 1,500 cubic meter oil tanks were kept on standby during construction to ensure a 10-day supply of oil in case of any production stoppages; we coordinated with the railway to provide two trains to transport large equipment to ensure the timely delivery of the equipment which was the first time large equipment had been transferred on the Qinghai-Tibet Railway; we purchased an additional set of key equipment as spare parts to ensure the safe and steady running of the power units after they were put into production.

With the motto of “working hard but without fear, lacking oxygen but not lacking spirit”, our people contributed to providing diesel power generation within 100 days and constructed 9 units ahead of schedule within the first 148 days. Compared with construction periods of similar units in other parts of the country, we were able to shorten the construction period to only 6 months at an altitude of 4,000 meters, thus taking the lead amongst state-owned enterprises and conveying the Communist Party’s and the State’s support to the people of Tibet.

All assets of the project were handed over to the government in the Tibet Autonomous Region as



a show of gratitude before the Tibetan New Year in 2010. The commissioned units will supply 20% of the capacity for the power grid in Tibet and meet the demands of 100,000 households and herdsmen.

The construction of this project by CHNG has alleviated serious shortages of power during the winter months in Lhasa and has led to the local Tibetans writing a moving ode to CHNG in thanks to us for fulfilling our social responsibility on top of the Tibetan plateau. Bangda Gongzhaqu, Vice-County Head in Duilongdeqing County of Tibet said excitedly that CHNG has performed a miracle with amazing quality and speed, and brought brightness and warmth to the Tibetan people.





Prospect in 2010

2010 is the final year of 11th Five-Year Plan and an important year for consolidating results from the international financial crisis. It is also the first year of the implementation of our **Action Plans on Green Development**. The year will bring about new challenges and opportunities that will significantly influence our long-term promotion of sustainable development and our various missions in 2010.

Safe Development



Objective

No personal injury and accidental deaths, no serious safety accidents or above during production and infrastructure construction, and no events that may impose adverse effect on the stability and social image of CHNG.

Green Development



Objective

To realize coal consumption rate of 324.5 g/kWh;
To accomplish the annual objective of the **Three-Responsibility Agreement of Energy Conservation and Emission Reduction**;
To construct 17 or 18 energy-saving and environment-friendly coal-fired power plants, and achieve main technical economic indicies up to domestic and international advanced levels.

Healthy Development



Objective

To achieve 466.5 billion kWh power output and coal output of 56.86 million tons;
To complete sales revenue of more than RMB 200 billion Yuan;
To increase profit over the same period;
To acquire power projects with total capacity beyond 10 GW, and coal mine projects with a total output of 10 million ton/year;
To commence the construction of new power projects with installed capacity of 12.42 GW, and that of new coal mine projects with total output of 12.20 million ton/year;
To ensure that installed capacity for commissioned projects will exceed 12 GW, and production capacity of updated coal mines will exceed 15 million ton/year.

Harmonious Development



Objective

To realize the development of both enterprise and employees;
To realize the mutual benefit of enterprise and its partners;
To realize the harmonious progress of enterprise and society.

In 2010, under the guidance of Deng Xiaoping Theory and the important thought of “Three Represents”, we will fully implement the spirit of the 17th CPC National Congress, and the 3rd & 4th Plenary Session of the 17th Central Committee of the CPC, and carry out the Scientific Outlook on Development. We will strive to transform the development mode, and enhance competitiveness and comprehensive strength. Meanwhile, we will pay more attention to development quality and efficiency, promoting structural adjustment, energy-saving and emission-reduction, strengthening enterprise management and innovation, and reinforcing construction of the Party and the State, so as to complete the performance objectives and goals of the 11th Five-Year Plan, and promote scientific development.

Measures

Production safety: we will implement a system of responsibility relating to production safety; carry out safety evaluations; develop special actions against breach of regulations; deepen the inspection and treatment of hidden dangers; carry out activities related to the “Safety Management Year of Outsourcing Project”; and continue to strengthen the emergency management system.

Operation safety: we will conduct legal operations, strengthen risk management, focus on preventing asset losses, investment losses and debt risks.

Political safety: we will intensively implement the policies of the Party and State, improve the construction of the Party’s working style and clean government, focus on combating all violations of the legality of enterprise leaders and operators, and maintain the stability of the enterprise.

Image safety: we will strengthen our public relations management, communicate closely with stakeholders, prevent and handle any event that may affect the stability and image of the enterprise.

Measures

We will overall promote the **“Action Plans on Green Development”**.

We will strengthen the whole process management of energy-saving & emission reduction; focus on supervision and guidance of high power consumption enterprises; strengthen the supervision, assessment and accountability system; enhance the “Three Synchronization” management of desulfurization device of newly-built power generating set and the maintenance management of desulfurization device of in-service power generating set.

We will deepen activities of optimizing energy consumption indices, and focus on the energy conservation and emission reduction of main model of power generating unit; continue to implement the policy of **“Developing Large Generating Units and Closing Down Small Ones”**. We will reinforce the pollutant discharge and carbon assets management; positively participate in the carbon asset market building and trading in domestic and abroad.

We will integrate scientific resources, to perfect the three-level sci-tech management system and technological innovation system in the trinity of production, teaching and research; improve the construction of innovation base for talented person, strengthen the promotion and application of scientific achievements and the protection of intellectual property rights; promote the R & D of advanced power technology and construction of demonstration projects.

Measures

We will carefully examine power, coal and capital market situations, strengthen the management on budget and benchmarking, and intensify the supervision and guidance of key enterprises.

We will further develop power markets, enlarge the power output, and effectively manage power price and power costs.

We will adhere to the “Fuel Management Year” concept, effectively manage our coal use, coal quality, coal price and coal consumption.

We will strengthen our management processes, and make efforts to reduce costs.

We will strengthen the management of our current assets, investment and basic construction, and endeavor to control the assets liabilities ratio.

We will comprehensively perform EVA assessments and enhance the value creation of all enterprises.

Measures

We will strengthen leadership and team building, reinforce democratic management and improve the scientific mechanism for talent selection and appointments.

We will strengthen regional cooperation with partnerships, actively expand cooperative fields, deepen cooperation and enhance cooperative quality.

We will strengthen and promote the **“Action Plans on Green Development”** and create a responsible green brand.

We will enthusiastically participate in poverty alleviation projects in Xinjiang and Tibet, and actively strengthen the socialist new countryside construction and social welfare.

We will continue to promote the “Project of Millions and Billions”, the “Project of Enriching and Benefiting the Farmers”, and the “Construction of New Pasturing Areas”.

GRI Index

Full Disclosure ● Partial Disclosure ◐ Not disclosed ○ Not Applicable ⊗

GRI Indicator Protocols		Page	Degree of Disclosure
1	Strategy and Analysis		
1.1	Statement from the top decision-maker of the organization on the relevance of sustainability to the organization and its strategy	P2-3	●
1.2	Description of key impacts, risks and opportunities	P6-7/P14	●
2	Organization Profile		
2.1	Organization name	P11	●
2.2	Major brands, products and/or services	P11	●
2.3	Operational structure of the organization (including main departments, the operating company, subsidiaries and joint ventures)	P11-12	●
2.4	Location of Headquarters	back flap	●
2.5	The number of countries where the organization operates, names of countries where organization has main businesses, names of countries which are particularly relevant to the sustainable development described in report	inside front cover/P11	●
2.6	Nature of ownership and legal form	P11	●
2.7	Markets served by the organization (including regional markets, trades served, types of beneficiaries)	P11-12	●
2.8	Scales of the organization	inside front cover/ P11-12	●
2.9	Significant changes in size, structure or ownership of the organization during the reporting period	P11-12	●
2.10	Awards received in the reporting period	P16/P23/P39/P51	●
3	Report Parameters		
3.1	Reporting period(financial year or solar year)	inside front cover	●
3.2	Date of the previous report(if any)	inside front cover	●
3.3	Reporting cycle(such as annual, biennial)	inside front cover	●
3.4	Contact point for inquiring report and report content	back flap	●
3.5	Process of defining report content	inside front cover	●
3.6	Boundary of the report(such as the state, the department, subsidiaries, leased facilities, joint ventures, and suppliers)	inside front cover	●
3.7	Limits to the cope or boundary of the report	inside front cover	●
3.8	Basis for the report on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organizations	inside front cover	●
3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the indicators and other information in the report	inside front cover	●
3.10	Explanation of the effect of and reasons for any restatements of information provided in earlier reports(such as merger/acquisition, base year/year period changes, business nature, design procedure)		⊗
3.11	Significant changes from the previous report in the scope, boundary, or measurement methods applied in the report	inside front cover	●
3.12	Table identifying the location of the Standard Disclosure in the report	P56-59/P60-61/P65	●
3.13	The organization listed in the assurance report accompanying the sustainability report provides policy and current practice for seeking external assurance. If not listed, explain the scope and basis of any external assurance provided, and also explain the relationship between the reporting organization and the assurance provider(s)	P62-64	●
4	Governance, Commitments and Engagement		
4.1	Governance structure of the organization	P11-12	●
4.2	Indicate whether Chairman of the Board is also an executive officer	P11-12	●

GRI Indicator Protocols		Page	Degree of Disclosure
4.3	For organizations that have a unitary board structure, state the number of members of the highest governance body that are independent and/or non-executive members		⊗
4.4	Mechanism for shareholders and employees to provide recommendations or direction for the highest governance body	P11-12/P48	●
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives(including retirement arrangement), and the organization's performance(including social and environmental)	P12-15/P22/P29/P37	●
4.6	Procedures for avoiding conflicts of interest within the highest governance body	P12/P14-15	●
4.7	Process for determining the qualifications and expertise of the members of the highest governance body for guiding the organization's strategy on economic, environmental, and social topics	P12-13/P47-48	●
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation	head page II/head page III/P5-7/P16/P20-24/P28-33/P36-42/P46-51	●
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, code of conduct and principles	inside front cover/P13-15	●
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance	P13-15/P22/P29/P37/P48	●
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization	P13/P15	●
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	inside front cover/P16/P65	●
4.13	Memberships in associations(such as industry associations) and/or national/international advocacy organizations	P19/P65	●
4.14	List of stakeholder groups engaged by the organization	head page III/P18	●
4.15	Basis for identification and selection of stakeholders with whom to engage	head page III/P18	●
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	head page III/P18	●
4.17	Key topics and concerns that have been raised by stakeholders during their engagement, and how the organization has responded to those key topics and concerns, including through its reporting	head page III/P18/P56-59	●
5	Economic Performance		
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments	P17/P43/P51	●
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	P6-9/P33	●
EC3	Coverage of the organization's defined benefit plan obligations	P17/P48-49	●
EC4	Significant financial assistance received from government		○
EC5	Range of ratios of standard entry level wage compared to local minimum wage at significant locations of operation		○
EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation	P39-41/P50	◐
EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation	P47-48	◐
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement	P39/P50-51	◐
EC9	Understanding and describing significant indirect economic impacts, including the extent of the impacts	P38-42/P50-51	◐
6	Environment		
EN1	Materials used by weight or volume	P17/P33	●
EN2	Percentage of recyclable materials used	P6/P17/P30-32	◐
EN3	Direct energy consumption by primary energy source	P17/P33	●
EN4	Indirect energy consumption by primary source	P33	◐
EN5	Energy saved due to conservation and efficiency improvements	P6/P17/P30-32	●

GRI Indicator Protocols		Page	Degree of Disclosure
EN6	Initiatives to provide energy-efficient or recyclable energy based products and services, and reductions in energy requirements as a result of these initiatives	P6/P30-32	●
EN7	Initiatives to reduce indirect energy consumption and reductions achieved	P17/P29-30/P33	●
EN8	Total water withdrawal by source	P17/P30-33	●
EN9	Water sources significantly affected by withdrawal of water	P30/P33	●
EN10	Percentage and total volume of water that can be recycled and reused	P30/P32	●
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	P30/P33	●
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	P33	●
EN13	Habitats protected or restored	P33	●
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity	P33	●
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations by level of extinction risk	P33	●
EN16	Total direct and indirect greenhouse gas emissions by weight	P31/P33	●
EN17	Other relevant indirect greenhouse gas emissions by weight	P31/P33	●
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved	P6-9/P17/P28-35	●
EN19	Emissions of ozone-depleting substances by weight		○
EN20	NOx, SOx, and other significant air emissions by type and weight	P17/P31/P33	●
EN21	Total water discharge by quality and destination	P30/P32-33	●
EN22	Total weight of waste by type and disposal method	P32-33	●
EN23	Total number and volume of significant spills	P17/P25	●
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally		⊗
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff	P30/P33	●
EN26	Initiatives to mitigate environmental impacts of products and services, and the extent of impact mitigation	P6-9/P28-35	●
EN27	Percentage of products sold and their packaging materials that can be reclaimed by category		⊗
EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations	P17/P33	●
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce		○
EN30	Total environmental protection expenditures and investments by type	P29-35	●
7	Labor practices and decent work		
LA1	Total workforce by employment type, employment contract, and region	P17/P47	●
LA2	Total number and rate of employee turnover by age group, gender, and region	P17/P47	●
LA3	Benefits provided for full-time employees that are not provided for temporary or part-time employees, by major operations	P47-49	●
LA4	Percentage of employees covered by collective bargaining agreements	P17/P48	●
LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements	P48	●
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	P48-49	●
LA7	Rates of injury, occupational diseases, lost days, absenteeism and total number of work-related fatalities, by region		○
LA8	Education, training, counseling, prevention and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases	P48-49	●
LA9	Health and safety topics covered in formal agreements with trade unions	P48-49	●
LA10	Average hours of training per year per employee by employee category	P48/P51	●
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	P48	●
LA12	Percentage of employees receiving regular performance and career development reviews	P48	●

GRI Indicator Protocols		Page	Degree of Disclosure
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity	P17/P47	●
LA14	Ratio of basic salary of men to women by employee category		○
8	Human Rights		
HR1	Percentage and total number of significant investment agreements that include human rights clauses or that have undergone human rights screening		○
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken		○
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	P48-49/P51	●
HR4	Total number of incidents of discrimination and actions taken		no such incidents
HR5	Operations identified in which the right to exercise freedom of association or collective bargaining may be at significant risk, and actions taken to support these rights	P48	●
HR6	Operations identified as having significant risk for incidents of child labour, and measures taken to contribute to the elimination of child labour	P48	●
HR7	Operations identified as having significant risk for incidents of forced or compulsory labour, and measures taken to contribute to the elimination of forced or compulsory labour	P48	●
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations		○
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken		no such incidents
9	Society		
SO1	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting	P6-9/P14/P25/P33/P50-53	●
SO2	Percentage and total number of business units analyzed for risks related to corruption	P15	●
SO3	Percentage of employees trained in organization's anti-corruption policies and procedures	P15/P48	●
SO4	Actions taken in response to incidents of corruption	P15	●
SO5	Public policy positions and participation in public policy development and lobbying	P50	●
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country		no such contributions
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes		no such legal actions
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations		no such compliances
10	Product Responsibility		
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures	P20-27	●
PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services by type of outcomes	P17/P25	●
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements		○
PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes		no such compliances
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction	P25/P33/P50-51	●
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship		○
PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes		no such compliances
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data		no such compliances
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services		no such compliances

Social Responsibility Indicator System for Power Generation Industry

Indicator	location in the report
Part I: Foreword (P series)	
(P1) Report specifications	
P1.1 Report reliability statement	not disclosed
P1.2 Scope of reporting organization	inside front cover
P1.3 Reporting period	inside front cover
P1.4 Number of previous Social Responsibility Reports	inside front cover/P16
P1.5 Reporting cycle	inside front cover
P1.6 Reported data description	inside front cover
P1.7 Reference standards	inside front cover
P1.8 The contact person for inquiries and questions about the report and its content, and his or her contact details	back flap
P1.9 How to obtain the report and extended reading (P2) From the CEO	back flap
P2.1 Statement of the relation between the organization and social responsibility	P2-3
P2.2 Summary of social responsibility performance and areas for improvement in the reporting year	P2-3
(P3) Company profile	
P3.1 Company name, form of ownership and location of headquarters	P11/back flap
P3.2 Main Products and services of the organization	P11
P3.3 Geographic coverage and structure of business operations	P11-12
P3.4 Size of business	P11-12
P3.5 Corporate governance structure	P12-14
P3.6 Structure of board of directors	not applicable
(P4) Key Performance indicator matrix	
P4.1 Social responsibility performance comparison schedule	P17/P51
P4.2 Key performance data sheet	P17
P4.3 List of recognitions received during the reporting period	P16/P23/P39/P51
Part II: Responsibility management (G Series)	
(G1) Responsibility management	
G1.1 Business philosophy, vision and values	head page II/head page III/P6-7/P16
G1.2 Risks, opportunities and sustainable development analysis	P2-3/P14
G1.3 Social responsibility organizations and CSR declarations in which the organization participates	P19
G1.4 Social responsibility leadership	P12/P16
(G2) Responsibility promotion	
G2.1 Social responsibility management system	P16
G2.2 Social responsibility activity planning	head page III/P54-55
G2.3 Social responsibility training	not disclosed
G2.4 Encourage subsidiaries to implement social responsibility	P14/P16
G2.5 Encouraging partners to implement social responsibility	not disclosed
(G3) Communication on social responsibility	
G3.1 Stakeholders' expectations and the organization's reactions	head page III/p18
G3.2 Internal social responsibility communication mechanism	P16/P18

Indicator	location in the report
G3.3 Internal social responsibility communication and exchange in which top management are involved	not disclosed
G3.4 External social responsibility communication mechanism	P16/P18
G3.5 External social responsibility communication and exchange in which top management are involved	not disclosed
(G4) Legal and regulatory compliance	
G4.1 Legal and regulatory compliance system	P12/P15/P37/48
G4.2 Legal and regulatory compliance measures	P15/P37/P48
G4.3 Legal and regulatory compliance training	P15
G4.4 Significant negative information on legal and regulatory compliance	not disclosed
Part III: Economic performance (M series)	
(M1) Responsibility to shareholders	
M1.1 Investor relations management system	P18/P37-43
M1.2 Growth potential	P17/P43
M1.3 Profitability	P17/P43
M1.4 Security	not disclosed
(M2) Responsibility to customers	
M2.1 Customer relations management system	P18/P38
M2.9 Systems supporting innovation of products and services	P32/P41-42
M2.10 R & D expenditures	not disclosed
M2.11 Number of R&D personnel and their proportion to the total manpower	P47
M2.12 Number of newfound patents	P32
M2.14 Significant awards for innovation	P8-9/P32/P51
(M3) Responsibility to partners	
M3.1 Strategic sharing mechanism and system	P40-41/P50
M3.2 Ethical sourcing system and (or) policy	P18
M3.3 Proportion of ethical sourcing	not disclosed
M3.4 Concept of integrity and supporting policy	P18/P37
M3.5 Credit ratings	not disclosed
M3.6 Contract fulfillment rate	not disclosed
M3.7 Concept of fair competition and supporting policy	P18
Part IV: Social Performance (S series)	
(S1) Responsibility to government	
S1.1 Response to national policy	P18/P50-51
S1.2 Total tax payments	P17/P43
S1.3 Information on tax evasion	P18
S1.4 Policy or measures ensuring employment and (or) promoting employment	P18/P47-48
S1.5 Number of jobs created during reporting period	P47-48
(S2) Responsibility to employees	
S2.1 Compliance with national labor laws and regulations	P48
S2.2 Coverage of labor contract/collective contract	P18/P48
S2.3 Coverage of social insurance	P48
S2.4 Proportion of unionized employees to total manpower	P18/P48
S2.5 Provision of competitive pay to employees	P48
S2.6 Days of per capita paid leave each year	P48
S2.7 Labor disputes	not disclosed

Indicator	location in the report
S2.8 Equal employment opportunity policy	not disclosed
S2.9 Ratio between salary of male employee and of female employee	not disclosed
S2.10 Proportion of female managers to total manpower	P47
S2.11 Number of disabled employees	not disclosed
S2.12 Occupational health management policy	P48-49
S2.13 Employee counseling	P48-49
S2.14 Coverage of medical examination and health file	P48-49
S2.15 Incidence of occupational diseases	not disclosed
S2.16 Employee training management system / number of work-related casualties	P24/P48
S2.17 Employee training management system	P48
S2.18 Career path	P48
S2.19 Employee training effectiveness	P48
S2.20 Channels through which employee suggestions are communicated to the top management	not disclosed
S2.21 Employee satisfaction	not disclosed
S2.22 Employee turnover rate	P48
(S3) Safety	
S3.1 Safety management system	P22-23
S3.2 Emergency management system	P22-23
S3.3 Safety education and training	P24
S3.4 Safety training effectiveness	P24
S3.5 Investment in work safety	not disclosed
S3.6 Number of accident-caused casualties	P25
ELS3.1 Equipment operation management policy and measures	P24
ELS3.2 Equipment failure frequency	P25
ELS3.3 Plant equivalent availability coefficient	P17/P25
ELS3.4 Number of unscheduled equipment outage	P25
ELS3.5 Number of significant equipment breakdowns	P25
ELS3.6 Number of general equipment failures	P25
(S4) Community involvement	
S4.1 Impact of business operations on local communities	P29/P33
S4.2 Contribution to local economic development	P50
S4.3 Proportion of local employees to total manpower	not disclosed
S4.4 Proportion of local procurement	not disclosed
S4.5 Give-back policy or system	P51
S4.6 Corporate charitable fund or foundation	not disclosed
S4.7 Amount of donations	P51
S4.8 Overseas charitable donations	not disclosed
S4.9 Policy and measures supporting employee volunteerism	P48-49/P51
S4.10 Employee volunteerism data	not disclosed
PART V: Environmental performance (E series)	
(E1) Environmental management	
E1.1 Environmental management system	P29-30
E1.2 Environmental awareness training system	P29
E1.3 Ethical sourcing policy	not disclosed
E1.4 Environmental impact assessment for new investment projects	P29
E1.5 R&D and distribution system for environmentally friendly products	P8-9/P30-32
E1.6 Research and development and application of environmentally friendly technology and equipment,	P8-9/P30-32
E1.7 Biodiversity conservation	P33
E1.8 Total investment in environmental protection	not disclosed
E1.9 Environmental initiatives	not disclosed

Indicator	location in the report
E1.10 Information on noncompliance with environmental laws, regulations and policies	not disclosed
(E2) Energy and resources conservation	
E2.1 Energy-saving policy, measures or technology	P6-9/P29-32
ELE2.1 Coal consumption for power supply	P33
ELE2.2 Composite power consumption per power plant	P33
E2.3 Policy, measures or technology for water conservation	P32
ELE2.3 Water consumption per unit power generation	P33
ELE2.4 Policy, rules and measures supporting development of green power	P30-32
ELE2.5 Output or proportion of green power	P30-32
ELE2.6 Wastewater recycling policy and measures	P32
ELE2.7 Exhaust gas recycling policy and measures	P31
ELE2.8 Policy and measures for and performance of comprehensive utilization of fly ash	P31
ELE2.9 Policy and measures for and performance of comprehensive utilization of sweet gypsum	P31
ELE2.10 Policy and measures for recovery of residual heat and energy	P31-32
ELE2.11 Capital investment in energy conservation and recycling economy	not disclosed
E2.9 Green workplace policy or measures	not disclosed
E2.10 Green workplace performance	not disclosed
(E3), Pollution control and emission reduction	
E3.1 Policy, measures or technology for waste gas emission reduction	P31
ELE3.1 Penetration rate of desulfurization equipment for thermal power plant	P31
ELE3.2 Penetration rate of denitration equipment for thermal power plant	not disclosed
ELE3.3 SO ₂ emissions and emission reduction	P18/P33
ELE3.4 Nitrogen oxides emissions and emission reduction	not disclosed
ELE3.5 Fume and dust emissions and emission reduction	not disclosed
E3.3 Policy, measures or technology for wastewater effluent reduction	P32
E3.4 Wastewater effluent and reduction	P32
E3.5 Policy, measures or technology for reduction of waste residue discharge	P31
E3.6 Waste residue discharge and reduction	P31
E3.7 Rate of comprehensive utilization of waste residues	P31
ELE3.6 Industrial noise control	not disclosed
E3.8 Measures or technology for greenhouse gas emission reduction	P30-32
E3.9 Greenhouse gas emissions and emission reduction	P30-32
E3.10 CO ₂ emissions from business trips	not disclosed
ELE3.7 Factory premises and surrounding environment management	P33
Part VI: Concluding remarks (A series)	
(A1) Outlook: Corporate social responsibility activity planning	P54-55
(A2) Expert evaluation: Evaluation of the report by CSR experts or industry experts, stakeholders or professional organizations	P53/P62-64
(A3) Index: Reference to the indicators specified in this guide	P60-61
(A4) Reader feedback: Reader feedback form and channel	P67

The Assurance Statement

INDEPENDENT ASSURANCE STATEMENT

INTRODUCTION AND OBJECTIVES OF WORK

BUREAU VERITAS has been engaged by CHINA HUANENG GROUP ("HUANENG") to conduct an independent assurance of its CHINA HUANENG GROUP SUSTAINABILITY REPORT 2009 ("the Report").

This information and its presentation in the Report are the sole responsibility of the management of HUANENG. Bureau Veritas was not involved in the drafting of the Report. Our sole responsibility was to provide independent assurance on the accuracy and reliability of information included, and on the underlying systems and processes used to collect, analyse and review it.

SCOPE OF WORK

- Data and information included in the Report for the report period from 2009.1.1 to 2009.12.31;
- Evaluation management processes of collect, compile and analyze data and information in the Report;
- The assessment team only visited HUANENG head-office in Beijing and did not visit other site office and external stakeholders.
- Excluded from the scope of our work is any assurance of information relating to:
 - Activities outside the defined assurance period;
 - Much of the operating financial data in this Report is taken from HUANENG Annual Reporting and accounts, which is separately audited by an external auditor and therefore excluded from the scope of the Bureau Veritas assurance;
 - HUANENG's development aim, future intention and statements of future commitment.

METHODOLOGY

As part of its independent assurance, Bureau Veritas undertook the following activities:

- Interviews with relevant personnel of HUANENG;
- Review of documentary evidence produced by HUANENG;
- Audit of sampled performance data;
- Review of data and information systems for collection, aggregation, analysis and review;

Our work was conducted against **Bureau Veritas' standard procedures and guidelines for external Assurance of Sustainability Reports**, based on current best practice in independent assurance. For this assignment, we have used the AA1000 Assurance Standard, the GRI G3 Sustainability Reporting Guidelines and the International Standard on Assurance Engagements (ISAE) 3000. Bureau Veritas evaluated the Report against the principles of Objectivity, Completeness, Appropriateness, Materiality and Responsiveness.

The work was planned and carried out to provide reasonable, rather than absolute assurance and we believe it provides a reasonable basis for our conclusions.

OUR FINDINGS

On the basis of our methodology and the activities described above, it is our opinion that:

- The information and data included in the scope of our assurance are accurate, reliable and free from material mistake or misstatement;
- The information included in the report are general objective, reliable and free from material mistake or misstatement;
- During the process of assurance engagement, BV also identified some improvement opportunities to be included in the "Key areas for ongoing development".

COMPLETENESS

The Report discloses HUANENG sustainability strategy, underlying management systems, actions and performance in the four areas of safety, environment, economics and social accountability. The Report covers HUANENG head-office and domestic branches, discloses some key issues





for the stakeholders, including environmental protection, clean energy, safety, employee rights and interests and charitable activities.

OBJECTIVITY

The information and data presented in the report is objective and reliable. HUANENG has implemented relevant procedures and management offices to collect, analyse, check and compile information in all domains covered by the report.

MATERIALITY

The Report identified some core indicators of environment, society and economy as per GRI G3 requirements. For example, the environmental section discloses sustainable development actions, pollutant emission data and the solution of closing down outdated production facilities, the safety section discloses OHS management and accidents data.

APPROPRIATENESS

The Report theme being: "Environmental Development and Clean Energy", its contents are focused on the characteristics of HUANENG management and electricity industry. The typeset and language style of the report shows HUANENG culture and value.

RESPONSIVENESS

HUANENG was responding objectively to some key issues to stakeholders in the Report.

KEY AREAS FOR ONGOING DEVELOPMENT

Based on the assurance work conducted, the following opportunities for improvement have been identified for HUANENG:

- Extend the stakeholder engagement process to formally capture stakeholders' concerns and views in a structured manner across the organization;
- HUANENG shall consider to improve the report's responsiveness and to disclose more information about supplier control and management.

STATEMENT OF INDEPENDENCE, IMPARTIALITY AND COMPETENCE

Bureau Veritas is an independent professional services company that specializes in Quality, Health, Safety, Society and Environmental management with almost 180 years history in providing independent assurance services. No member of the assurance team has a business relationship with HUANENG. We have conducted this verification independently, and there has been no conflict of interest.

WanZe Zhang
Director for Greater China Region
Bureau Veritas Certification
2010-04-02

May Huang
Assurance Team Leader
Bureau Veritas Certification
2010-04-02

Rating Report of China Huaneng Group Sustainability Report 2009

Upon the request of China Huaneng Group, CSR Research Center of Chinese Academy of Social Sciences selected experts from Chinese Expert Committee on CSR Report Rating to form a rating team for evaluation and rating of China Huaneng Group Ltd Sustainability Report 2009. The rating team rated China Huaneng Group Ltd Sustainability Report 2009 (the "report") based on the relevant criteria specified in Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 1.0).

1. Basis of rating

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 1.0) (the "Guidelines") published jointly by the aforesaid Center, China WTO Tribune and China Committee of Corporate Citizenship

2. Conclusions

Completeness (★ ★ ★ ☆)

The Report provides comprehensive information on the key indicators specified in the Guidelines for power generation industry with respect to responsibility management, economic, social and environmental responsibilities.

Materiality (★ ★ ★ ★)

The Report systematically discloses material information on such key social responsibility topics for power generation industry as occupational safety, environmental, economic and social responsibilities

Balance (★ ★ ★)

The report provides information on the number of unscheduled shutdowns, number of major equipment breakdowns, number of minor equipment breakdowns and number of injury and death accidents. Moreover, the report describes how the company addressed these accidents and breakdowns.

Comparability (★ ★ ★ ★)

The report provides information on some key performance indicators over the past five years, with good chronological comparability.

Readability (★ ★ ★ ★)

The report focuses on how the company met its safety, economic, social and environmental responsibilities in five aspects: commitment, objective, measure, performance and typical case. The report is quite readable with well-defined structure and understandable language.

Creativity (★ ★ ★ ★)

The report illustrates the sustainability model, green development action plan 2010-2020 and green development program of the company as well as describes the quantified objectives and measures of the company for the year of 2010.

Overall rating (★ ★ ★ ★)

Through evaluation, the rating team agreed to give a four-star rating to the report, believing that this report is an excellent one.

3. Suggested improvements

- Provide more information on employee engagement and environmental performance of the company.
- Address the alleged violations of environmental laws and regulations.
- Provide more data and information on industry-wide economic, social and environmental performance.

4. Rating team

Team leader: Peng Huagang, vice president of executive council of the Center and director general of Research Bureau of State Assets Supervision and Administration Commission of the State Council.

Team members: Chen Yuanqiao, secretary general of China ISO Social Responsibility Task Force

Yin Gefei, vice president of China WTO Tribune magazine

Zhong Hongwu, director of CSR Research Center, Economics Division, CASS

Li Weiyang, executive deputy director of CSR Research Center, Economics Division, CASS

Chen Jiagui

President of Executive Council of the Center

Standing committee member of NPC

Acting chairman of Presidium of Divisions, Chinese

Academy of Social Sciences

陳佳貴

Peng Huagang

Head of the rating team

Vice president of executive council of the Center

Director general of Research Bureau of SASAC

韓高



中国企业社会责任报告
专家评级委员会
Chinese Expert Committee on CSR Report Rating

Implementation of the United Nations Global Compact

The United Nations Global Compact requires companies within their influence area to comply with, support and carry out a set of ten universally accepted principles in the aspects of human rights, labour standards, environment and anti-corruption. These principles are from Universal Declaration of Human Rights, Declaration on Fundamental Principles and Rights at Work by International Labour Organization, and Rio Declaration on Environment and Development.

Huaneng, as the first Chinese power company, joined the United Nations Global Compact in November 2007, and since then has been actively carrying out the ten principles of United Nations Global Compact by promoting safe, clean, healthy and harmonious development.

Ten Principles		Location in the Report	Implementation
Human Rights	Respect and support the protection of internationally proclaimed human rights	P47-49	Abide by laws and regulations at home and abroad, support international conventions on human rights approved by the State, safeguard and respect human rights, and guarantee employees' legal rights and interests.
	Not complicit in human rights abuses	P47-49	
Labour	Uphold the freedom of association and the effective recognition of the right to collective bargaining	P48	Adhere to fair and just employment policy, strictly follow national laws and regulations on labour relationship management and labour contract, so as to strengthen the management of employees' labor contract. Establish workers' congress system and the system of making the Company affairs public, so as to ensure 100% employee membership in trade unions at all levels, and strengthen democratic participation of employees.
	Eliminate all forms of forced and compulsory labour	P48	
	Effective abolition of child labour	P48	
	Elimination of discrimination in respect of employment and occupation	P48	
Environment	Take a precautionary approach to environmental challenges	P4-5 /P29/ P54-55	Guided by Action Plans on Green Development , to optimize power sources structure, shut down small coal-fired power generating units, develop clean energy, vigorously develop wind energy, hydropower and nuclear energy, and actively respond to global climatic change. By means of the scientific and technological innovation, actively research and develop clean power generation technologies, and create energy-conserving and environment-friendly coal-fired power plants, thereby mitigate impacts on environment.
	Undertake initiatives to promote greater environmental responsibility	P4-7 /P29-35	
	Encourage the development and promotion of environment-friendly technologies	P30-32	
Anti-corruption	Work against corruption in all its forms, including extortion and bribery	P15	Strengthen the construction of anticorruption system, carry forward the probity culture, strictly implement the responsibility system of improving the Party's work style and building a clean governance, thoroughly carry out special activities on combating commercial bribery, and standardize our operations and transactions.

Terminology

1. Ultra Supercritical Power Generation Technology

Ultra supercritical power generation technology improves thermal efficiency in a boiler and reduces electricity and coal costs by increasing boiler steam pressure (25-31 MPa) and temperature (580°C -610°C). Currently, this is the world's most advanced environmentally friendly technology for power generation.

2. High Temperature Gas-cooled Reactor (HTGR)

High Temperature Gas-cooled Reactor is a kind of nuclear reactor that takes helium gas as cooling agent, with high exit temperature. High temperature gas-cooled reactor uses coated particles fuel, and takes graphite as moderator. The exit temperature of reactor center is from 850°C to 1,000°C, and even higher. The fuel is usually uranium dioxide with high concentration, and sometimes is uranium dioxide with low concentration. High temperature gas-cooled reactor has such advantages as high thermal efficiency (40-41%), high burn-up fraction (up to 9,000 MW day/ton uranium, and high conversion ratio (0.7-0.8).

3. GreenGen

GreenGen refers to the research, development, demonstration and promotion of a coal-based energy system that focuses on hydrogen production through gasification, combined cycle power generation with hydrogen turbines, and fuel cell-based power generation, while capturing and storing CO₂, so as to raise efficiency in coal-fired power generation and achieve near zero emissions of pollutants and CO₂.

4. Economic Value Added (EVA)

Economic Value Added is a comprehensive tool or index used to measure if an enterprise creates values or if the enterprise realizes real profit of production and management. It is based on retained profits after tax by deducting the opportunity cost of equity and debt capital from its operating profit.

5. Three Big, Three Strong

Big assets scale, big market share, great social achievement, strong profit-earning capability, strong competing capability, strong capability of sustainable development.

6. The Clean Development Mechanism (CDM)

The Clean Development Mechanism (CDM) is one of the three flexible mechanisms under the framework of the "Kyoto Protocol". It allows developed countries to cooperate with developing countries in projects that reduce emissions and generate Certified Emission Reductions (CERs), by providing financial and technical support to help developed countries fulfill their greenhouse gas emission commitments.

7. "Eight Relationships"

The relationship among development speed, scale and benefits; the management relationship among group company, regional/industrial companies and grassroots enterprises; the cooperation relationship among power generation industry, coal industry and financial industry; the structural relationship among various power sources; the joint relationship among the management processes, such as capital construction, manufacture, and operation; the beneficial relationship among the company, society, the local, and stakeholders; complementary relationship between domestic development and overseas development; corporately improving relationship between enterprise development and employee development.

8. "Four Must"

After the accidents happening, we must investigate the causation of accidents, dispose the major responsibility person, educate the major responsibility person and the mass, establish practical rectification measures.

9. "100-1000-10000" Campaign

The "100-1,000-10,000" Campaign refers to the project to construct 100 schools, build 100 rural clinics, renovate 100 natural villages, and establish 100 rural culture rooms; to train 1,000 rural teachers, provide financial aid for 1,000 junior and senior high school graduates to enter vocational technical schools, and 1,000 poverty-stricken students in middle schools and primary schools to complete their education; to resolve the problem of drinking water of 10,000 people, to train 10,000 rural labor force for employment transfer and support 100,000 people to participate in the national new rural cooperative medical service.

Feedback Questionnaire

Dear Readers,

This report is a Sustainability Report (2009) issued to the public by China Huaneng Group. We are looking forward to your advice and suggestions so that we can improve our reporting in the future. We are grateful if you answer the following questions and send this questionnaire back to us in one of the following ways.

Fax: +86-10-63228866

Mail to: No. 4, Fuxingmennei Street, Xicheng District, Beijing (100031)

Your Personal Information

Name: _____

Organization: _____

Position: _____

Tel: _____

Fax: _____

E-mail: _____

Readers Feedback Questionnaire on this Sustainability Report

Single Choice (Please mark your choice with "√")

	Yes	Average	No
1. Do you think this report reflects CHNG's significant impacts on safety, environment, economy and society?			
2. Do you think this report makes an accurate and complete analysis of the relations between Huaneng and its stakeholders?			
3. Do you think the information disclosed in this report is clear, accurate and complete?			
4. Do you think this report is convenient for reading with respect to contents and design?			

Open Question

1. In your opinion, which part of this report is most satisfactory?

2. What information that you need to know is not included in this report?

3. What's your advice on our future sustainability reports?

Thank you for your support and cooperation.

China Huaneng Group

1 0 0 0 3 1

Stamp

No. 4, Fuxingmennei Street, Xicheng District, Beijing

China Huaneng Group



Postal Code:

