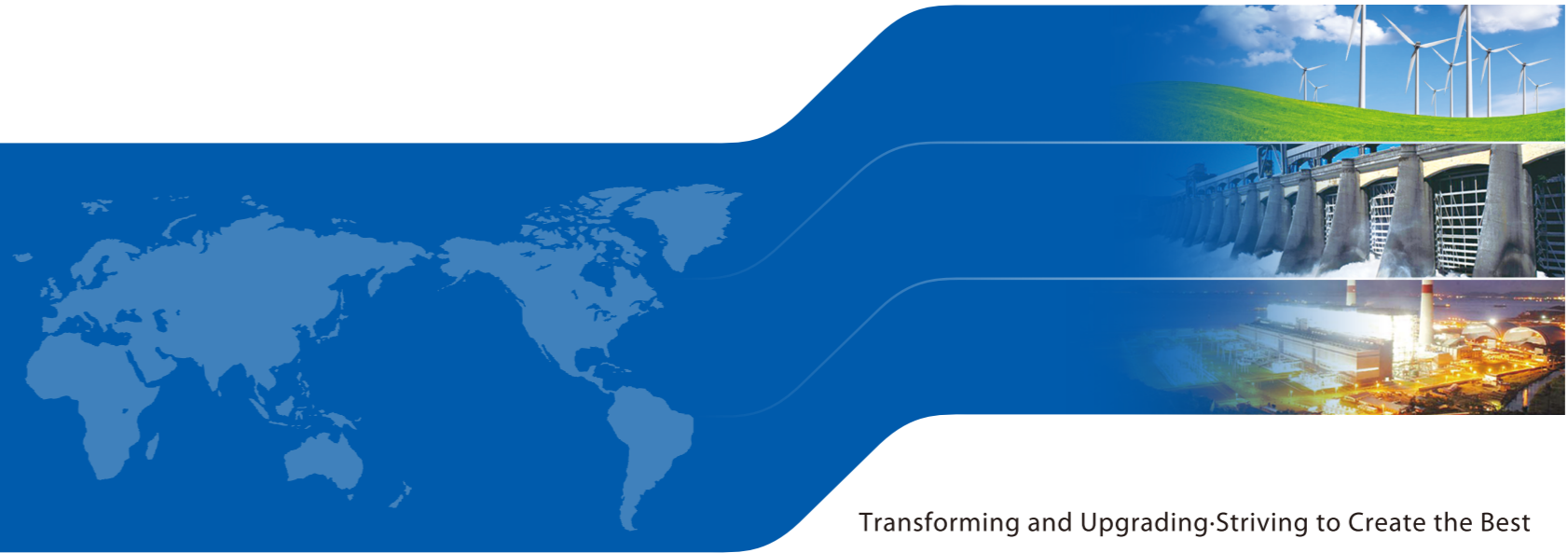


Sustainability Report 2011



Sustainability Report 2011



Transforming and Upgrading-Striving to Create the Best

This report is published in both Chinese and English versions. If you have any questions or concerns, please contact us as follows:
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CHINA HUANENG GROUP



China Huaneng Group (hereinafter referred to as CHNG) has a corporate logo comprised of the morphed 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 the vast ocean embraces streams as part of its tides and global reach.
The corporate logo looks like mountains, magnificent and lofty. It features a precise and awe-inspiring composition and a visual sense of simplicity and vigorosity, representing the sacred mission and modern demeanor that CHNG undertakes as a leading state-owned enterprise.

About this Report:

Time Covered

Jan 01, 2011 – Dec 31, 2011. Where appropriate, the report includes additional content and information that pre-dates the stated reporting period.

Reporting Cycle

Our sustainability report is published annually, this being the sixth report since 2006.

Main Contents

This report outlines our performance in 2011 on safety, environmental, economic and social issues. It includes information and typical cases from documents, statements and information platforms of the Company and its grassroots-level enterprises.

Compilation Conformance

This report is compiled in accordance with the **Guidelines 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 the **Sustainability Reporting Guidelines (G3.1)** from the Global Reporting Initiative (GRI), **Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 2.0)** by the Chinese Academy of Social Sciences (CASS), **ISO 26000: Guidance on Social Responsibility** by International Organization for Standardization, and **Guidelines on Social Responsibilities of Chinese Industrial Enterprises and Industrial Associations** by the China Federation of Industrial Economics (CFIE).

Major Changes

The report's main theme is "Transforming and Upgrading-Striving to Create the Best." It further improves Huaneng's sustainable development model, systematically illustrates the concepts, objectives, measures, performance and typical cases of the company in promoting safe development, optimal development, green development, healthy development, international development and harmonious development. The report includes a special feature that demonstrates the Company's practice of building a world-class energy group and creating excellence.

References to China Huaneng Group

In this report, "China Huaneng Group", "Huaneng Group", "Huaneng", "the Company" and "we" refer to China Huaneng Group.

Online Access to the Report

The report is prepared and released in Chinese and English. For more information, please go to our website: <http://www.chng.com.cn>.

Corporate Mission

A "red" company serving the needs of socialism with Chinese characteristics

A "green" company advocating technological innovation and environmental protection

A "blue" company advancing via continuous innovation and internationalization

Declaration on Sustainable Development

Persist in adhering to 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 environmentally-friendly society.

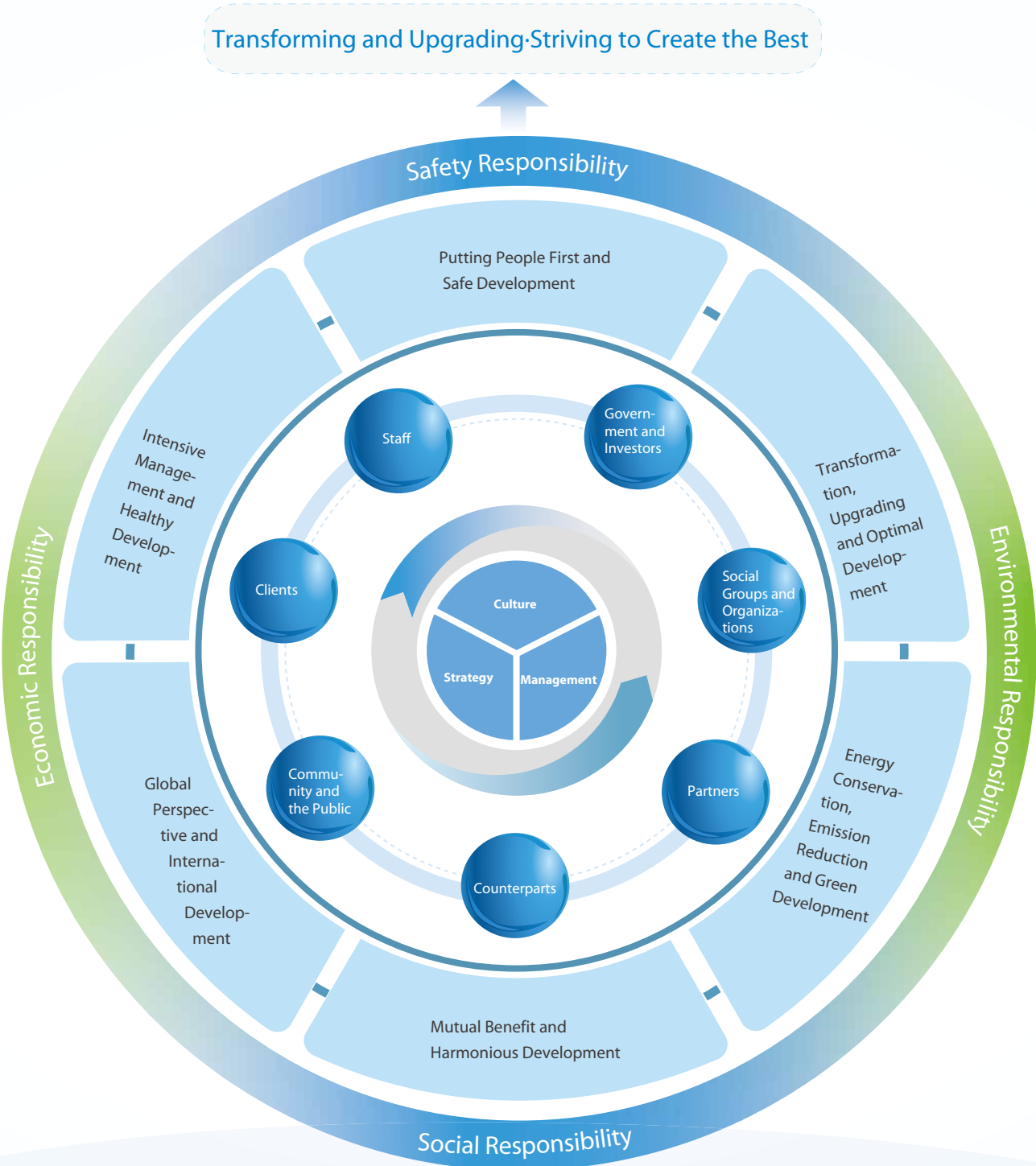
Persist in pursuing operational performance in a rational way, so as to set an example in promoting harmony between enterprises and society.

Persist in relying on employees and working with the public to develop the enterprise 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.



Huaneng's Sustainable Development Model



Transforming and Upgrading-Striving to Create the Best

Building a comprehensive energy group with top international competitiveness that regards power generation as its core business, coal development as its foundation, finance as its supporting business, and technology as the driving force, while synergizing various industries.

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Message from Company Leaders



Cao Peixi

President of China Huaneng Group and Vice Secretary of the CPC Huaneng Committee



Huang Yongda

Secretary of the CPC Huaneng Committee and Vice President of China Huaneng Group

Central enterprises, as the backbone of the Chinese Republic, are an important pillar of the national economy. In the course of their economic activities, central enterprises voluntarily implement their social responsibilities, which not only necessary for sustainable development, but also a duty of companies as citizens in society. Over the years, as one of the key state-owned enterprises directly managed by the central government, China Huaneng Group has consciously integrated social responsibility into its enterprise development strategy, business management and the entire process of building its corporate culture. Adhering to the "Three-color" corporate mission, we are committed to promoting the sustainable development of power and energy in China. Also persisting in the road of safe development, optimal development, green development, healthy development, international development and harmonious development, we have made efforts to give back to society with the fruits of development. We have built a vast stage for staff development, created development opportunities for partners, and provided sincere help to the public. What's more, we have realized with balanced speed, scale, quality and efficiency, achieved coordination between development levels and the resource environment, and made positive contributions to the comprehensive and rapid development of the economy and society.

In 2011, facing unprecedented difficulties and a complex and difficult business situation, we have earnestly implemented the Scientific Outlook on Development. Adhering to the working ideas of "transforming development modes, adjusting structurally, intensifying management, raising efficiency, controlling risks, improving quality and pioneering as a first-class enterprise," we have conquered difficult problems, made exciting achievements and laid a good foundation for building a world-class enterprise with international competitiveness. By the end of 2011, our domestic and foreign installed electricity generation capacity had reached 125.38 GW, ranking first in Asia and second in the world. We achieved an annual generating capacity of 604.6 billion KWh, coal production of 64.06 million tons, and consolidated operating income of 270.3 billion Yuan. Our production and operation targets are among the best in the industry. We have improved the company's overall strength, competitiveness, and sustainable development capabilities; achieved A-level performance as evaluated by the State-owned Assets Supervision and Administration Commission (SASAC); and ranked 276th globally among Fortune 500 companies.

In 2012, we will take building a world-class enterprise with international competitiveness as the driving force, take improving the quality and efficiency as the center, and take speeding up transformation and upgrading as the focus. We will focus on changing our development modes, advancing the ideas of getting stronger and better, as well as give priority to further strengthening safety management and promoting the development of a safe production management system. While making great efforts to strengthen business management to increase efficiency, we will improve development quality to realize effective, moderate and orderly development. We will also strengthen capital operations and the work of "going global" to promote the readjustment of capital, improve our technological innovation systems and mechanisms, intensify energy conservation and push ahead with the construction of an excellent and environmentally-friendly enterprise. Furthermore, we will advance reform and innovation to improve

the management level of the enterprise, strengthen Party construction and strive to enhance the scientific level of Party construction work.

In today's world, social, environmental and resource problems have become the focus of global concern and a bottleneck of economic and social development, and are major issues facing the development and progress of human society generally. As an energy group with electricity as our core business, we have always been highly concerned about national energy security and the impact of fossil energy development on the environment. We continue on the road of green, low-carbon and circular economic development, and strive to realize cleaner development. Furthermore, we consciously abide by the basic principles in the United Nations Global Compact (UNGC); comply with the relevant laws and regulations of the state, international conventions and international practices; and manage credit according to the law. We also continue to deepen our management and operations to tap our potential and increase efficiency, ensuring the maintenance and appreciation of state-owned assets, and attaching importance to the interests of stakeholders to achieve mutual benefit and win-win outcomes.

Responsibility carries force and wins the future. We will always keep in mind the economic, political and social responsibilities of the enterprise, and enhance its sustainable development capabilities with high standards and high quality, so as to take important strides on the road to build a world-class enterprise.

March 2012

Members of the Management Team



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

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

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

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

Huang Long, Vice President of CHNG and Member of the CPC Huaneng Committee (first from left in the front row)

Guo Junming, Chief Accountant of CHNG and Member of the CPC Huaneng Committee (first from right in the front row)

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

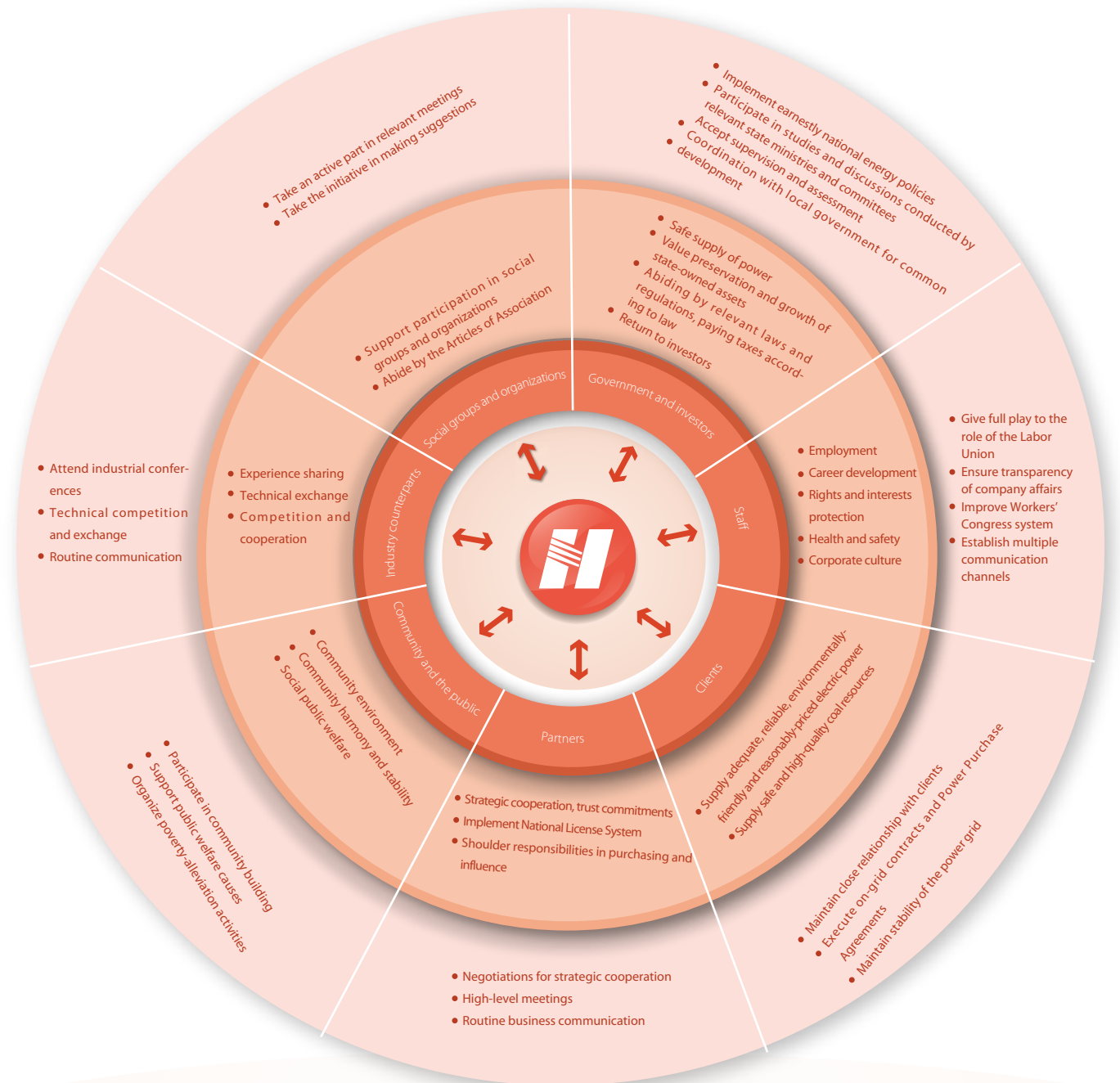
Hu Jianmin, Vice President of CHNG and Member of the CPC Huaneng Committee (second from right in the back row)

Kou Wei, Vice President of CHNG and Member of the CPC Huaneng Committee (second from left in the back row)

Wu Dawei, Chief Economic Manager of CHNG (first from right in the back row)

Hu Shihai, Chief Engineer of CHNG (first from left in the back row)

Stakeholders



● Stakeholders ● Major Concerns ● Communication and Exchange

Creating a World-class Enterprise

One driving force, creating a world-class enterprise with international competitiveness;

One center, improving development quality and efficiency;

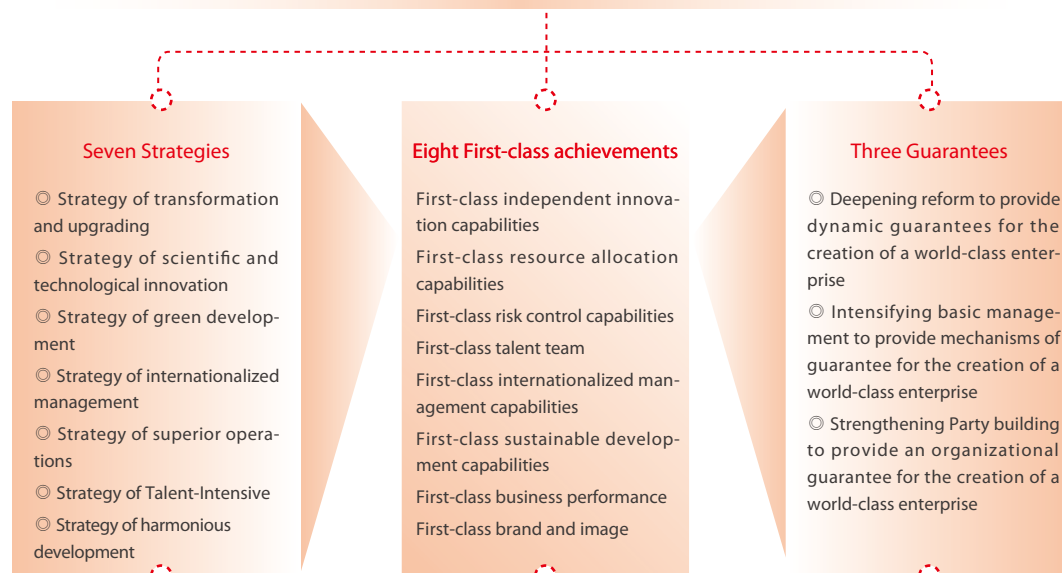
One focus, speeding up transformation and upgrading.

Topic

◎ Guiding Ideology

Using scientific development as the theme, speeding up transformation of the development mode as the mainline, enhancing international competitiveness as the core, international benchmarking as the measure, and advanced objectives as the guide, we will increase pressure, enhance motive power, make efforts to promote seven strategies and intensify three guarantees to enhance our vitality and strength, and strive for excellence. We will also improve the overall capability of the Company and the quality of its development so that we will take the lead to become a world-class enterprise with international competitiveness and make new and greater contributions to build a moderately prosperous society.

Creating a world-class enterprise with international competitiveness



"873" Top-level Design

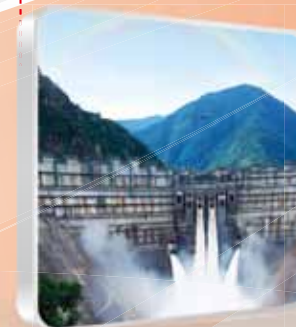
China's first commercial wind and solar hybrid power generation system - Nan'ao Wind Farm



China's first domestic 1000MW ultra-supercritical coal-fire power units - Huaneng Yuhuan Power Plant



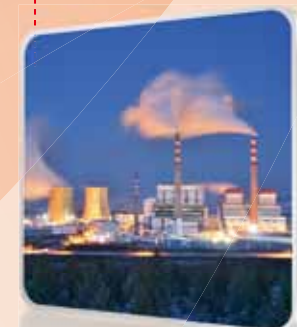
The world's largest carbon capture facility - Huaneng Shidongkou Power Plant II



The world's highest double curvature arch dam - Xiaowan Hydro-power Station



China's first IGCC demonstration project - Tianjin IGCC Demonstration Power Plant



China's first large-scale integrated coal and electricity enterprise - Yimin Coal and Electricity Company

◎ Objectives of Development

Strong independent innovation capabilities

Strong resource allocation capabilities

Strong risk control capabilities

Strong talent team

Excellent business performance

Excellent corporate governance

Excellent layout and structure

Excellent social image

◎ Basis of Development

The installed capacity ranks first in Asia and second in the world

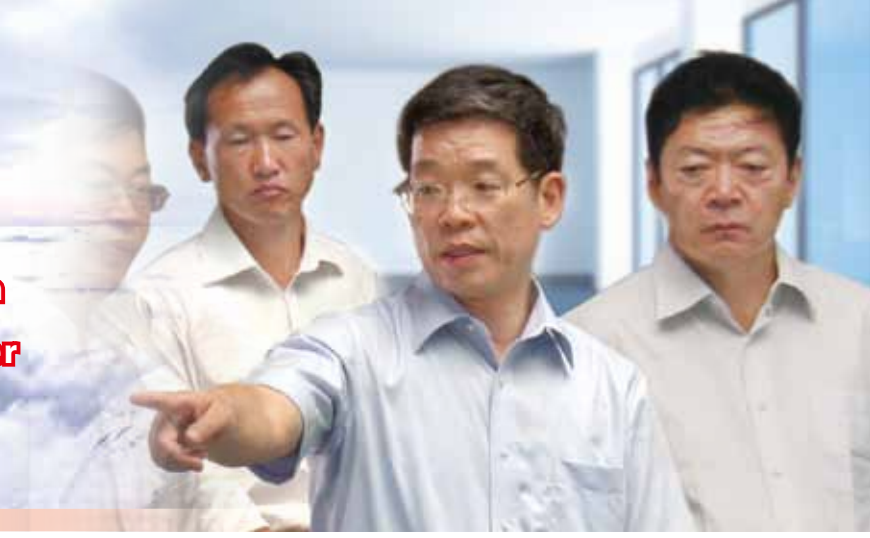
Ranks No. 276 among the World's Top 500 companies

In the course of the Company's development, we have achieved a number of "Firsts"



Excelling in Performance in Huaneng

To be an advanced organization
To be an excellent Party member
To be a high-level enterprise



Topic

Carrying out the "Excel in Performance" Campaign to promote Huaneng's scientific development

In accordance with the unified leadership of the leading group of the "Excel in Performance" Campaign for central enterprises, the CPC Huaneng Committee has carried out the "Excel in Performance" Campaign in the Company, earnestly implementing the requirements of the activities in combination with Huaneng's actual situation, strengthening organizational leadership with a high sense of political responsibility, persisting in overall development, highlighting the characteristics of practice, and striving to realize the "three achievements, three combinations, and three concentrations." Consequently, the "Excel in Performance" Campaign has achieved great effects in each area of work and achieved good momentum to be an advanced organization, to be an excellent Party member and to be higher-level enterprise. The Company has also effectively promoted the sustained, healthy and rapid development.

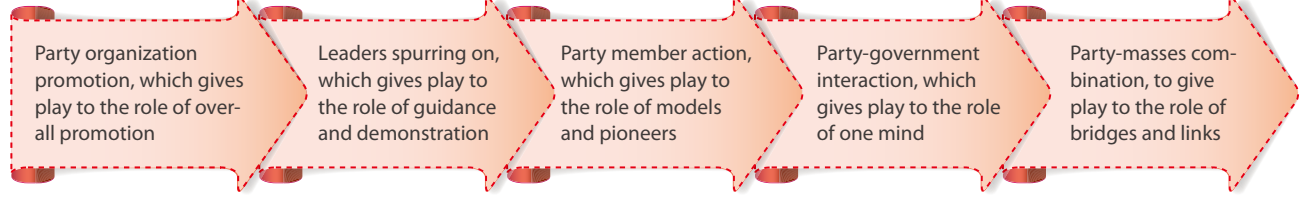


As part of the "Excel in Performance" Campaign, we have adhered closely to the theme of scientific development, taking structural reorganization, independent innovation, intensified management and team building as our working focus and important elements of the "Excel in Performance" Campaign, while also making great efforts to excel in scientific development and striving to be world-class enterprise so as to earnestly translate the "Excel in Performance" Campaign into a powerful driving force for scientific development of the enterprise.

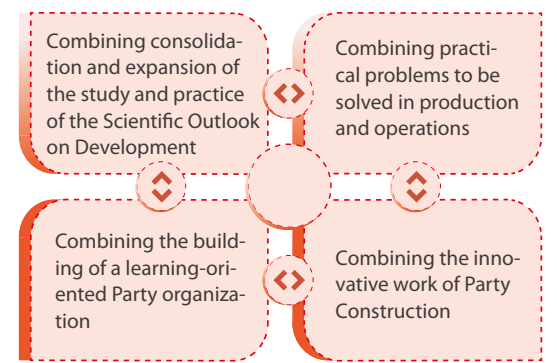
We have given full play to the role of Party organization and Party members to carry out the "Excel in Performance" Campaign, taking the "Four-Strengths and Four-Excellents" as our focus, further improving the systems and mechanisms for the building of Party organizations at the grassroots level, constantly enhancing the scientific level of Party building work, and making efforts to foster advanced Party organization and outstanding Party members at the grassroots so as to provide strong ideological, political and organizational guarantees for the faster and better development of the Company. Our Party organizations at all levels have performed their responsibilities and built strong organizations. Our Party members have promoted the scientific development of the company through their deeds, combining good Party performance with their jobs, devoting themselves to model actions, and carrying out a series of activities such as "a Party Branch is a flag and a Party member is a beacon," "Being the backbone, being a pioneer" and others, in which emerged a number of innovative advanced practical models.

On the basis of summing up the experience of the "Excel in Performance" Campaign, our Party organization has further defined it as an important approach to build a world-class enterprise with international competitiveness. We will strive for excellence in increasing economic efficiency, speeding up structural readjustment, promoting scientific and technological progress, strengthening corporate management and improving internationalized operations so as to implement the tasks of the Company during the 12th Five-Year Plan and drive the company to take the lead in the ranks of world-class enterprises.

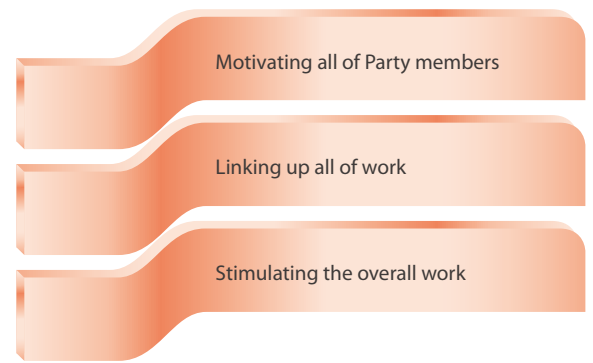
Creating the working mechanisms of the "Five Roles"



Creating the "Four Combinations" activity model



Creating a lively "three activities" work scope



Advanced Models Bright angels in the dark – the Jalainur Coal Company's Tiebei Mine excavation team

Taking the "Excel in Performance" Campaign as an opportunity, all Party members of the Tiebei coal mine excavation team have found revitalized safety work through the help of Party member safety positions, outstanding Party members and others. They made use of the campaign to boost safety management and stimulate safety work through the drive of the Party branch and the initiation of leaders, demonstrating to Party members through helping them understand accident sources, along with culture, education and politics. Therefore, they have achieved a 15 consecutive year safe production record.



Advanced Models Hydropower pioneer deep in the mountains – Xiaowan Hydropower Station of Huaneng Lancang River Hydropower Company

In the "Excel in Performance" Campaign, 36 Party members of the Xiaowan Hydropower Station Reservoir cooperated with the Party Branch in Chajiang Village where the station is located, pairing off with 2,318 people from 580 households in 13 villages to implement 12 aid measures, including mutual training of Party members, exchanges on the "Excel in Performance" Campaign, supporting the construction of new rural communities, working with experts from agricultural universities to give guidance on planting economic crops, and other activities. Through financial support, cultural integration, construction of new rural communities and other activities, they have effectively promoted harmonious development between the company and local people.



Media Attention





Strategy and Management

Company Profile

China Huaneng Group is a key state-owned enterprise approved by the State Council. The registered capital of China Huaneng Group is RMB 20 billion Yuan. The Company is engaged in the following businesses: development, investment, construction, operation and management of power sources, production and sale of business and products related to finance, transportation, renewable energy and environmental protection, and industrial investment, operations and management.

China Huaneng Group was first incorporated in 1985. Since then, the Company has provided experience in the reform, development, and technological innovation of the power industry. The Company has played an exemplary role in improving enterprise management and increasing economic benefit for power enterprises, the Company greatly contributed to meeting the requirements of economic and social development, as well as maintaining and adding value to state-owned assets. The Company continuously maintains its leading position, pursues cooperation and mutual benefits, and has gradually cultivated the "Three-color Corporate Culture," 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. Our core values are "Integrity, Cooperation, Innovation, Performance-oriented, and Serving the Nation."

By the end of 2011, the Company had wholly-owned or majority-owned power plants in 30 provinces, municipalities, autonomous regions and overseas, with total installed capacity of 125.38 GW. Businesses that support the core business, such as coal, finance, scientific R & D, transportation, etc., have been developed in a coordinated way. In the list of the world's 500 top companies in 2011 released by the Fortune magazine, Huaneng's rank rose from 313 in 2010 to 276 in 2011.

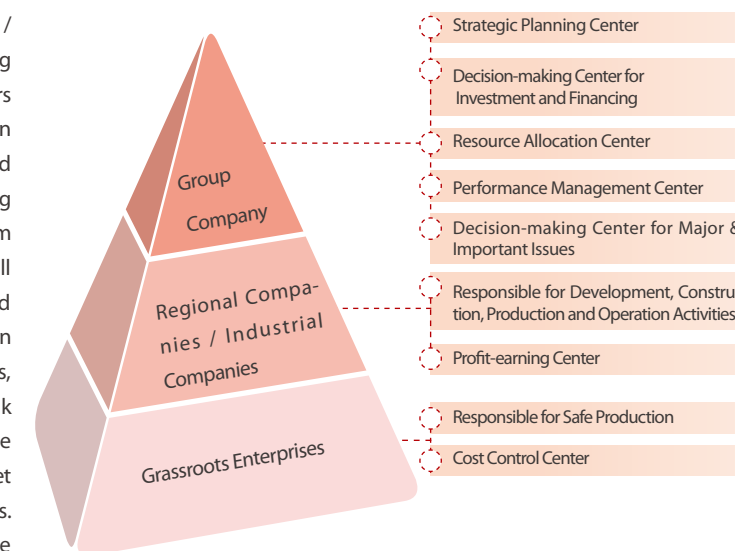
The Twelfth Five-Year Plan is an important period for China Huaneng Group to build a world-class company with international competitiveness. Therefore, the company will continuously hold high the great banner of socialism with Chinese characteristics, take Deng Xiaoping Theory and the "Three Represents" as its guidance, and thoroughly carry out the Scientific Outlook on Development. With the creation of a world-class company with international competitiveness as the orientation, the improvement of development quality and efficiency as the center, and the acceleration of transformation and upgrading as the focus, we will concentrate on transforming our development mode, promoting the company's strength and betterment, and fully improving every level of the company with regards to safety, management, development and performance of Party building. With these efforts, Huaneng can take the lead to become a world-class enterprise with international competitiveness and make new and greater contributions to building a moderately prosperous society.

Events

- On February 25th Huaneng held a general meeting of cadres from headquarters to make deployments for strengthening the building of the headquarters and carrying out "Efficiency Year" work.
- On April 28th Huaneng made economic value-added (EVA) assessments for all secondary units to strengthen EVA management.
- On June 10th Huaneng Renewables Co. Ltd successfully listed on the Hong Kong Stock Exchange.
- On July 7th Fortune magazine released the list of the world's 500 top companies in 2011 and the Company ranked 276th, up by 37 places over the previous year.
- On August 2nd SASAC ranked Huaneng as an A-level Enterprise for Business Performance among Central Enterprises.

Management System

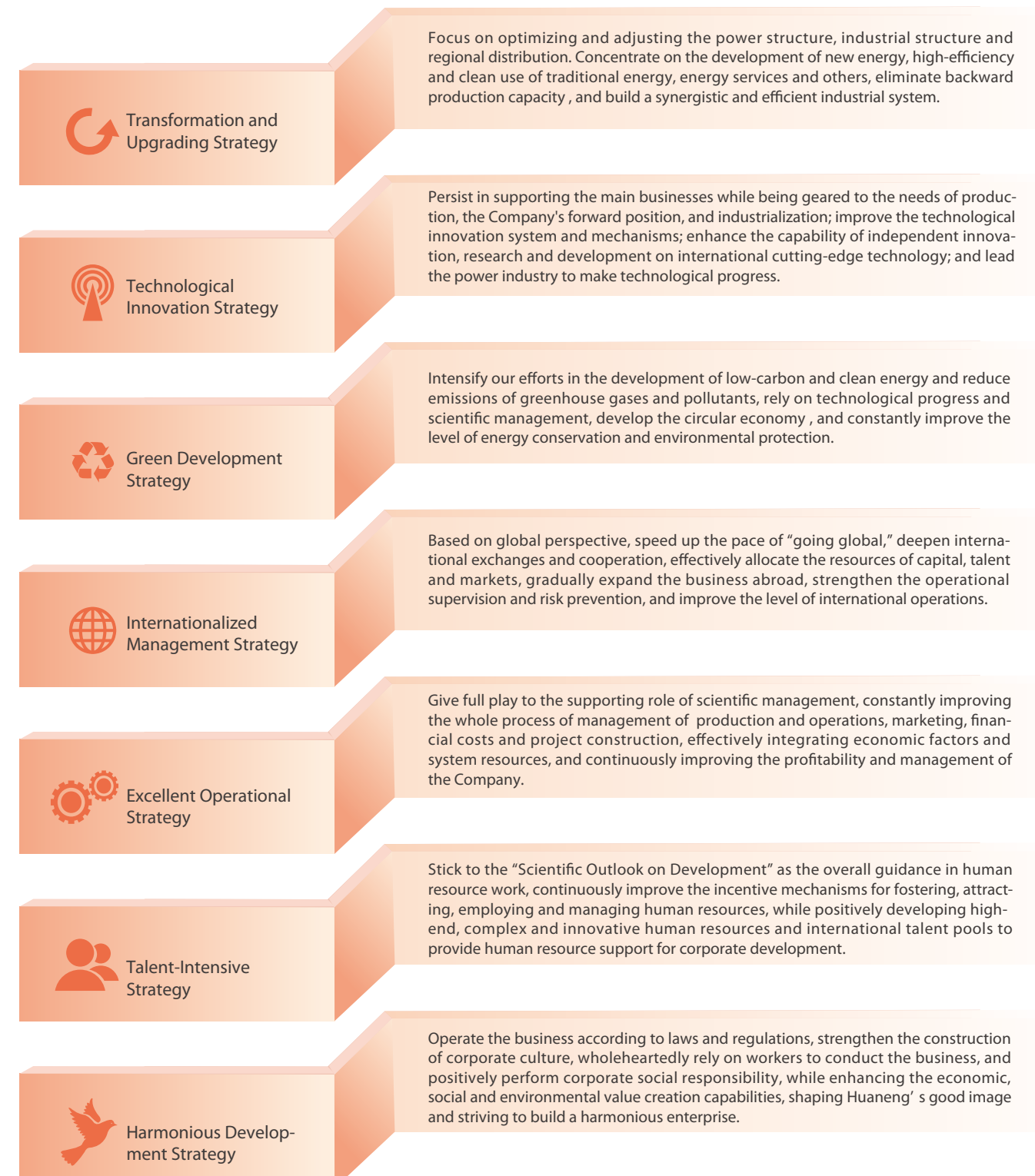
The Company continues to strengthen its three-level management system, comprised of the "headquarters - regional companies / industrial companies - grassroots companies." In 2011, Huaneng improved the working efficiency and service levels of the headquarters through the work of "Efficiency Year", established the Coal Corporation (formerly the Coal Department), Materials Corporation and others, and further deepened the reform of systems in relevant industries. Huaneng has also formulated and promulgated 95 management system changes at the headquarters level to improve the company's overall management system. Furthermore, Huaneng improved evaluation and management systems centered on the "Four Evaluation Systems" in the secondary and tertiary companies, strengthened EVA evaluations, overall cost controls, standards management, and corporate risk controls, and set up special management committees, such as the Expert Committee, Safe Production Committee, and Finance & Budget Committee, which further enhanced our decision-making abilities. The regional / industrial companies enhanced efficiency in resource allocation, and the grassroots companies enhanced the capability in execution and control.



◎ Organizational Structure

Departments of the Headquarters		
General Administration Department	Department of Capital Operations and Equity Management	Supervision Department
Department of Planning and Development	Department of Safe Production	Auditing Department
Department of Budget and General Planning	Department of Environmental Protection and Science Technology	Department of Ideological and Political Work
Department of Corporate Governance and Legal Affairs	Engineering Department	Labor Union Working Committee
Department of Operations	International Cooperation Department	
Finance Department	Human Resources Department	
Units Directly under China Huaneng Group		
The Central School of CPC China Huaneng Group	China Huaneng Group Technical Economics Research Institute	China Huane Group IT Center
Industrial Companies		
Huaneng International Power Development Corporation (HIPDC)	GreenGen Co., Ltd.	Huaneng Properties Co., Ltd.
Huaneng Power International Inc. (HPI)	Huaneng Energy and Transportation(Holding) Co, Ltd	China Huaneng Group Clean Energy Technology Research Institute
Huaneng Renewables Corporation	Huaneng Capital Services Co, Ltd.	China Huaneng Group Fuel Co., Ltd.
Huaneng Nuclear Power Development Co., Ltd.	China Huaneng Group Technology Innovation Center	
Regional Branch Companies		
China Huaneng Group Northeast Branch	China Huaneng Group Jiangsu Branch	China Huaneng Group Hunan Branch
China Huaneng Group East China Branch	China Huaneng Group Zhejiang Branch	China Huaneng Group Chongqing Branch
China Huaneng Group Central China Branch	China Huaneng Group Anhui Branch	China Huaneng Group Qinghai Branch
China Huaneng Group South Branch	China Huaneng Group Fujian Branch	China Huaneng Group Guangxi Branch (Preparatory office)
China Huaneng Group Hebei Branch	China Huaneng Group Jiangxi Branch	China Huaneng Group Guizhou Branch (Preparatory office)
China Huaneng Group Shanxi Branch	China Huaneng Group Henan Branch	
Regional Subsidiaries		
North United Power Co., Ltd.	Huaneng Jilin Power Generation Co., Ltd.	Huaneng Gansu Energy Development Co., Ltd.
Huaneng Lancang River Hydropower Co., Ltd.	Huaneng Heilongjiang Power Generation Co., Ltd.	Huaneng Tibet Power Generation Co., Ltd.
Huaneng Hulunbuir Energy Development Co., Ltd.	Huaneng Hainan Power Generation Co., Ltd.	Huaneng Xinjiang Energy Development Co., Ltd.
Huaneng Shandong Power Generation Co., Ltd.	Huaneng Shaanxi Power Generation Co., Ltd.	China Huaneng Group Hong Kong Co., Ltd.
Huaneng Sichuan Hydropower Co., Ltd.	Huaneng Ningxia Energy Co., Ltd.	Xi'an Thermal Power Research Institute
Units Directly Managed by China Huaneng Group		
Huaneng Shandong Shidaowan Nuclear Power Co., Ltd.	Huaneng Hainan Industrial Co., Ltd.	

◎ Corporate Strategy



◎ Opportunities and Challenges

◇ Major Opportunities

● Clear Macroeconomic Policy Theme

Central Economic Work Conference has determined the general tone of being “stable while progressing” in the economic context, stressing the continue to implement proactive fiscal policy and prudent monetary policy, well handle the relationship of maintaining stable and rapid economic development, adjusting the economic structure and managing inflation expectations, while moving the national economy in the expected direction of macro regulation and control. All of these provide policy support for further development of the company.

● Improving Trends in the Overall External Environment of the Power Industry

The Central Committee and the State Council are very concerned about the development of the power industry and attach great importance to economic losses in the coal-fired power industry. In 2011, the state increased the price of electricity in some areas, while taking relevant measures to prevent coal prices from rising too fast. This creates the conditions for coal-fired power plants of the Company to reduce losses or turn losses into profits.

● Broad Consensus on Changing Development Mode

Through thorough study and practice of the Scientific Outlook on Development, the staff of the company deeply understands that changing the company's development mode is both a responsibility of the company and an inherent requirement for sustainable development. This laid a solid ideological foundation for the company to speed up transformation and upgrading, and get stronger and better.

● Better Capability in Tackling Hard Issues and Overcoming Difficulties

Huaneng has thoroughly carried out the Striving for excellence Campaign in a systematic way. Relentlessly and tenaciously, all of the cadres and employees have withstood various tests, and accumulated valuable experience, significantly improved the ability and quality of the cadre team. This provides a strong guarantee for the company to fully press ahead with scientific development.

◇ Major Risks

● Changes in the Economic Situation

The world economic situation will remain very severe and complicated with increasing instability and economic recovery uncertain. The Chinese economy is confronted with significantly unbalanced, uncoordinated and unsustainable contradictions and problems, the coexistence of downward pressures from economic growth and from the rise of prices, and complicated economic and financial trends, which bring risks to the Company's management and development.

● Changes in the Electric Power Market

Affected by factors such as the slowdown of economic growth, adjustment of the industrial structure, and more efforts in energy conservation and emissions reduction, the acceleration rate of electric power consumption growth may slow across society. In recent years, influenced by factors such as having less newly installed capacity, coal supply issues, and less inflow, the company has not been able to put all of its power generation capacity into effective use, directly bringing challenges to the Company in production and marketing.

● Changes in the Coal Market

Constrained by rail capacity, port transit capacity and the striking structural contradiction between the supply and demand of coal, the coal supply will remain tight in some areas for some time, and its price will remain high. Internationally affected by depreciation of the US dollar, the global excess of financial liquidity, and other factors, the coal price will still fluctuate greatly, bringing pressure to the Company in ensuring fuel supplies and reducing fuel costs.

● Changes in Capital Markets

As bank deposit reserve ratios and loan interest rates remain high, has resulted in tight supply, high costs and strict supervision in capital markets, with great uncertainty in monetary policy trends and fund supplies, which means setting new requirements for the Company for fund guarantees and cost controls.



Huaneng Renewables Corporation got listed on the stock market

◇ Corresponding Measures

● Further Strengthening Safety Management

With implementing safety responsibility as the mainline and strengthening the control of safety production process as the focus, we deeply pushed ahead with the construction of a supervision system and guarantee system for safe production, solidly carried out the task of meeting safety production standards, and deepened staff training on safety education. We also strengthened the safety management of coal mines and conducted special programs on disaster prevention, while improving the emergency system to achieve systematic safety.

● Further Intensifying Operations and Management

We have paid close attention to changes in the markets for electricity, coal and capital, strengthened our analysis and assessments of the situations, and developed effective measures to cope with the complicated circumstances in production and operations. We have also fully implemented EVA management and cost control measures and solved business problems while making efforts to increase income and decrease expenditures, and turning losses into profits so that we can complete our business tasks.

● Further Improving Development Quality

In accordance with the requirements for building a world-class enterprise, we have incorporated the improvement of development quality and efficiency into the whole development process of the company, advancing the implementation of strategies, accelerating the readjustment of the power structure, industrial structure and regional distribution, thus enhancing the synergistic capabilities of the industry, and achieving effective, moderate and orderly development.

● Further Strengthening Capital Operations and the Work of “going global”

Adhering to the principles of “advancing in some areas while retracting in others” and “doing what is appropriate and discarding what is inappropriate,” we intensified our efforts around equity financing, revitalized our stock assets, and optimized our capital layout. In the meantime, we have actively implemented the strategy of “go global,” deepened international exchange and cooperation, and improved and internationalized our operations and management.

● Further Promoting Scientific and Technological Innovation

We have deeply carried out the strategy of scientific and technological innovation, and strengthened the building of a scientific research team and research platform. Also, we have steadily pressed ahead with demonstration projects like commissioning the Tianjin IGCC power plant and a high temperature gas-cooled reactor nuclear power plant, and accelerated the research and development of such projects as 700°C ultra-supercritical power generation technology and 1200MW large-scale high-efficient generation units, which demonstrate our leading role in scientific and technological innovation.

● Further Strengthening Energy Conservation and Emissions Reductions

We are working to conscientiously carry out the requirements for energy conservation and emissions reduction during the period of the 12th Five-Year Plan, and have actively participated in the “thousands of companies saving energy and reducing carbon emissions” activity. We have also been deeply tapping the energy-saving potential of generating units, promoting the desulfurization and denitration transformation of active generating units in an orderly manner, while striving to build an excellent and environmentally-friendly enterprise.

● Further Pressing Ahead with Reform and Innovation

We continue to work on our overall goal in building a world-class enterprise, earnestly pushing forward the construction of an international benchmarking system, constantly improving the three-level management system, sorting out professional management systems in relevant fields, strengthening performance evaluations and comprehensive risk management, and continuously improving corporate management.

● Further Strengthening Party Building

We have continued to further explore and grasp the working principle of Party building, earnestly pushing forward all the work of Party building. This includes deeply carrying out the anti-corruption work and striving to enhance the scientific level of Party building work. We also have continued to strengthen the building of our cadre team and staff team as well as the development of corporate culture, fully implementing corporate social responsibility, and establishing a good corporate image.

◎ Anti-corruption

◇ Promoting Ethical Party and Government Responsibility

The Company has insisted on incorporating into its overall pattern of development the building of the Party's style and of a clean enterprise. We have continued to improve the leadership system and working mechanisms featuring Party committees exercising unified leadership, Party and government organs exerting concerted efforts, discipline inspection commissions organizing and coordinating the work and departments assuming their respective responsibilities. We have amended and issued the **Promoting Ethical Party and Government Responsibility Implementation Measures**, which refines

the contents and methods of inspection and evaluation, as well as assessment criteria, so as to ensure the implementation of the responsibility system.

In 2011, members of the Company's system signed more than 2,500 copies of a Letter of Responsibility for improving the Party's style and building a clean enterprise, conducted a test of knowledge on its responsibility system among 60 members of secondary unit leading groups, sample checked for performance in 16 units, collected 9,592 relevant ideas, and created a strong atmosphere of anti-corruption.

- **Huaneng's core concept of anti-corruption:**
Practicing the "Three-color mission" and Shaping a clean and honest life.

◇ Fully Carrying out Prevention and Control of Corruption Risks

In accordance with the Party organization's **Opinions on Applying the Theory and Experience of Risk Management to Deeply Promote the Construction of a Corruption Punishment and Prevention System in Huaneng**, we have taken three steps. These steps are piloting, summing up and dissemination, which help us earnestly carry out the prevention of corruption risks. In six companies piloting this system, including stock company, we actively carried out investigations and evaluations of corruption risk, developed corresponding prevention and control measures, and prepared the **Manual on Prevention and Control of Corruption Risks**. Consequently, we have formed a set of Huaneng's characteristic practices and experiences for preventing and controlling corruption risks, which is also applicable in different subordinate companies. In October 2011, the Company progressed with implementing the prevention and control of corruption risk in its all subordinate and affiliated companies.

◇ Strengthening Special Supervision and Inspection

With regularizing usage rights and preventing operational risks as the fundamental principles, we carried out special programs to address the problems of business corruption, tackling the prominent issues in project developing. In 2011, we inspected 401 projects, developed 115 rules and systems, checked 297 small savings accounts, rectified 3 problems, and improved 582 rules and systems.

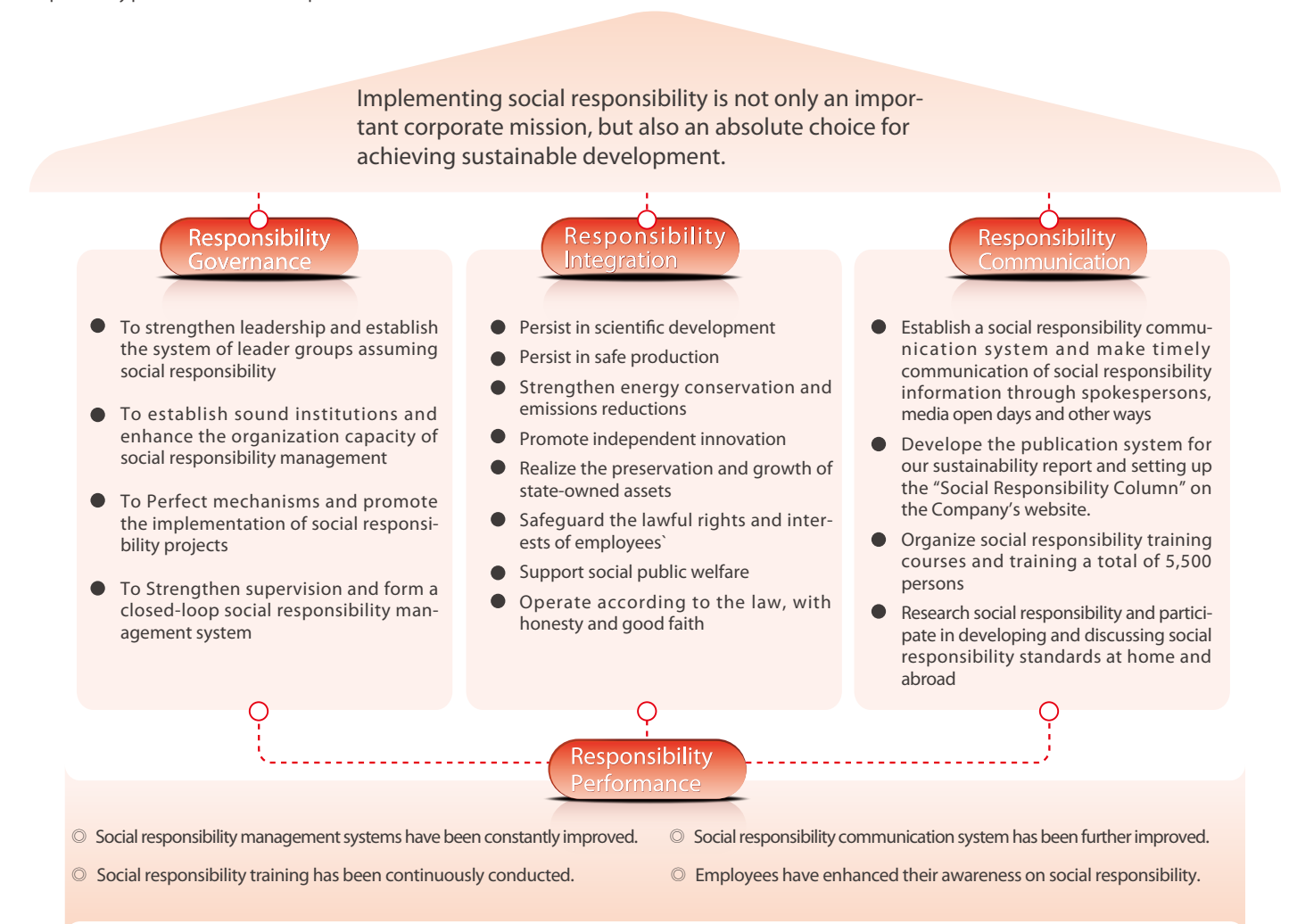
We earnestly pressed ahead with our performance monitoring work around fuel management, bidding, and the implementation of collective decision-making systems as the focus to improve corporate management and increase economic efficiency. In 2011, we received 1,218 supervision suggestions, made 149 supervision decisions, worked out 591 rules, saved capital of 205 million Yuan, and prevented economic losses of 60.30 million Yuan.



2011 Conference on Anti-Corruption Work in China Huaneng Group

◎ Social Responsibility Management

At Huaneng, we actively respond to **Requirements on Further Strengthening the Construction of Social Responsibility for Central Enterprises** issued by the State-owned Assets Supervision Administration Commission (SASAC) of the State Council, earnestly implement the company's **Guidance for Performing Social Responsibility**, make systematic planning on full implementation of social responsibility, and integrate social responsibility into our development strategy, our business management and the entire process of corporate culture, while intensifying responsibility governance, promoting responsibility integration, paying attention to responsibility communication, and improving responsibility performance. In November 2011, at the Working Conference on Social Responsibility for Central Enterprises, our leader made a speech themed as **"Devoting to green development, and building a world-class enterprise"**, introduced our main practices and working performance that Huaneng persisted in the concept of green development, implemented green action plan, and strived to achieve sustainable development. In particular, our case of **"Implementing social responsibility of central enterprise, and contributing to economic development in Tibet"** was selected as the excellent case of social responsibility practice of central enterprises.



Key Performance Indicators

Environmental Indicator	Unit	2007	2008	2009	2010	2011
Proportion of clean energy	%	9.06	12.40	15.01	17.70	19.12
Coal consumption for power generation	g/kWh	337.37	333.59	327.70	322.72	318.68
Comprehensive service-power consumption rate of power plant	%	5.88	5.90	5.61	5.22	5.08
Slag and ash utilization rate	%	68.30	63.03	70.24	74.15	76.34

Economic Indicator	Unit	2007	2008	2009	2010	2011
Installed capacity	10 MW	7,157.50	8,586.20	10,438.20	11,343.42	12,537.84
Power output	100 million kWh	3,270.35	3,645.00	4,200.95	5,376.44	6,046.31
Coal output	10 thousand tons	1,698	2,249	4,408	4,886	6,406
Total asset	100 million Yuan(RMB)	3,760.86	4,635.94	5,782.81	6,623.99	7,531.88
Total revenue	100 million Yuan(RMB)	1,156.07	1,513.75	1,777.40	2,279.94	2,681.73
Tax delivery	100 million Yuan(RMB)	141.80	141.20	166.48	172.66	195.78
Profit	100 million Yuan(RMB)	106.82	-58.41	68.85	77.83	61.41

Social Indicator	Unit	2007	2008	2009	2010	2011
Equivalent utilization coefficient of power generation equipment	%	93.32	91.69	92.27	94.87	94.17
Major injury and death accident	No.	0	0	0	0	0
Major equipment accident	No.	0	0	0	0	0
Common equipment accident	No.	5	4	3	0	6
Staff	No.	88,539	98,560	129,992	131,816	133,270
Women staff	No.	24,654	26,633	27,088	31,384	32,636
Signing rate of labor contract	%	100	100	100	100	100
Coverage rate of collective contract	%	100	100	100	100	100
Join-in rate of labor union	%	100	100	100	100	100
Donation amount	10 thousand Yuan (RMB)	14,400	13,600	19,000	12,000	5,674

Membership in Major 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 Electric Power Employees Ideological & Political Work Seminar	Vice Chairman
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	Director
China Supervision Association Power Branch	Vice Chairman
China Association of Chief Financial Officers	Standing Director
National Association of Financial Market Institutional Investors	Standing Director
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



Putting People First and Safe Development

Concept of Safe Development

- Safe development is the precondition for sustainable development. In order to achieve safe development, we stick to the scientific concept of “putting people first.” We regard safety as part of benefits, reputation and competitiveness, and fully implement our Safe Production Responsibility System. We have also improved safety management regulations, strengthened 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 possible.

Objectives of Safe Development

- To avoid serious accidents related to equipment, fire, or traffic;
- To avoid all other incidents that may impact the image of our company.

Measures of Safe Development

Strengthening Safety Management System

◇ Systems Development

We established a production safety management system at all levels of the company, including the Group Company, regional/industrial companies, and grassroots companies. We set up Production Safety Committees in all enterprises. Leaders of each enterprise were responsible for general safety and for organizing and ensuring a safe work environment.

In 2011, the Company compiled **Regulations against Code Violations, Regulations on Inspection and Treatment of Hidden Dangers**, and **Accountability and Punishment Measures for Accidents**, amended **Regulations on Investigation of Power Production Accidents** and other rules and regulations. The Company developed documentation work in each of the grassroots companies to further promote the institutionalization and standardization of safe production management.

In 2011, the Company cooperated actively with the State Electricity Regulatory Commission to carry out standardization of safe production in the power industry, and conducted standard tests and evaluations in the Dalat, Dezhou and Haikou power plants, respectively.

◇ Implementing Responsibility

We implemented the nation's policies, laws, and regulations on production safety through our Safety Production Responsibility System, which used a closed-loop management system that ensured decomposition, implementation and performance assessment of responsibility. All companies have signed a **Production Safety Responsibility Agreement** to guarantee the implementation of the safe production responsibility system. In this way, responsibilities for safety are designated level by level to each subsidiary, grassroots company, department, team and post.

We further improved our **Detailed Rules for Implementation of Safety Performance Assessments** and other systems, quantified our safety indicators, and divided them into four major indicators covering production safety, operational safety, political safety, and image safety for measurement and assessment. These indicators became the basis for assessing performance and determining responsibility. In addition, we have strictly implemented **Accountability and Punishment Measures for Accidents** to strengthen investigations into whoever responsible for accidents. Annually, we assessed each company's safety performance targets and issued warnings and corresponding penalties to those that fall short of their targets.

Events

- On January 4th the Company held the year's first enlarged meeting of the Production Safety Committee to sum up production safety work in 2010 and make deployments for 2011.
- On February 7th the Company deployed three special actions on complete coal mining licensing, improved system development, and the construction of the “Six Systems”.
- On June 3rd the Company carried out Safe Production Month activities with the theme of “Safety responsibility relies on implementation.”
- On June 15th Huaneng held a video conference to arrange for each Huaneng subsidiary company spare no efforts to meet peak demand and prevent summer floods.
- On September 15th the Company held a video conference on special actions against breaches of regulations in power generation companies and made relevant deployments.



◇ Emergency Management

The Company has improved the emergency management system, compiled preventive action plans, carried out emergency drills, and formed an emergency response team. We believe that preventive measures should be implemented effectively and that emergencies need to be managed dynamically to ensure proper controls. We have enhanced worker safety awareness and developed their abilities to handle emergencies. In 2011, we further improved various special emergency programs, and successfully held drills for preventing flooding at the Lancang River and a fire emergency drill in the Lingdong Coal Mine.

Additionally, the Company paid great attention to handling responses to sudden natural disasters, focused on strengthening our ability to handle abnormal climate, geological disasters, and other issues. We implemented full emergency management measures covering plans, materials, exercises, observation and the like. In 2011, the power plants in Weihai, Yuhuan, Fuzhou, Haikou, Taipingyi and others activated their emergency plans, successfully defended themselves against "Typhoon Muifa", "Typhoon Naza" and other geological disasters, and ensured safety production.



Fire emergency drill in coal mine

◇ Accident Management

The Company further strengthened accident management, carried out a "100-Day Special Action against Breach of Regulations" and made detailed reviews of various accidents by means of video conferences, accident reports and others, so as to help all companies draw lessons and prevent similar accidents. In 2011, we held the Power Enterprise Safety Production Supervision and Management Workshop, through which we made in-depth analysis of personal injury accidents from 2005 to 2010, summed up experience of safe production, and developed improvement measures.

◎ Consolidating the Foundations of Safety

◇ Team Building

We treated team building as an essential aspect of safety management. Stressing the concept of "ensuring zero death with zero breach of regulations, and ensuring zero accident with zero defect", we continued to carry out the activities of "being an excellent group and excellent employees." We encourage each group to innovate around safety management, and have comprehensively advanced group safety standardization, increased safety education and training. We have continuously consolidated the foundations of the enterprise's safe production. In 2011, ten power plant teams of the company including the number two team of the power operations department of the Yuhuan Power Plant were awarded the title of "Worker Pioneers" by All China Federation of Trade Unions (ACFTU).

Through focused basic management on safety, clear job safety responsibilities, closed-loop management, standard operational procedures, prominent evaluations on quality, intensified safety training and study, and safety group building, the main unit maintenance team of the Haibowan Power Plant achieved excellent results and successively won awards like "Youth Civilization Sample," "Central Enterprise Red Flag Group," and others.

◇ Management on Safety of Infrastructure Construction

We have adopted responsible procurement, strictly implemented access systems for outsourcing construction companies, and blacklisted companies if they experienced production and infrastructure construction accidents by barring them from future tendering. We also carried out pre-job safety training and education for personnel, ensured they were familiar with the code of safe construction, and enhanced their safety awareness. Furthermore, we strengthened our supervision over construction companies, and organized special activities on prevention and remediation of safety accidents in construction, so as to prevent safety incidents during infrastructure construction projects.

The Chaohu Power Plant adopted integrated management in production and infrastructure construction, eliminating minor personal injuries and serious equipment damage accidents, and achieving a smooth transition from infrastructure construction to power generation. Consequently, the Power Plant has successively received awards like the Electric Power Industry's Quality Engineering Award and the Electric Power Construction Association's Annual Quality Engineering Award.



◇ Coal Safety Management

The Company continued to strengthen coal mine safety production technology and on-site management, improved emergency management and long-term mechanisms to prevent major disasters and inspect serious hidden dangers, and actively promoted the development of safety quality standards, so as to further reinforce the foundations of coal mine safety management.

In 2011, the Company promoted three special actions on complete coal mining licensing, improved system construction and the development of the "Six Systems," extensively carried out general inspections of coal mine production safety, carried out a special program against breach of regulations, and conducted inspections and coal mine safety evaluations, which continue to enhance coal mine safety levels. Eleven coal mines passed the Safety Supervision Bureau's criteria and achieved national standards.



Inspection and Treatment of Hidden Dangers

◎ Prevention and Control of Safety Risks

◇ Safety Evaluations

We deeply developed safety evaluations, and issued Standards and Evidence on Safety Evaluations to establish a scientific evaluation system and working mechanisms while increasing self-discipline in safe production and continuous improvement. In 2011, all of the grassroots enterprises carried out their own investigations, among which some were assessed by experts in secondary units. Additionally, the group company conducted reexaminations and evaluations in Power Plants of Chaohu, Rizhao, Linyi, Yangluo, Baoyi, Wulashan, Yimin and Hailar, which effectively increased the safety of their production and management, along with equipment safety levels.

◇ Inspection and Treatment of Hidden Dangers

We shifted the focus of safety work to the production line, strengthened supervision at the workplace, deepened the inspection and elimination of hidden dangers to its equipment and the overall working environment. Additionally, we developed comprehensive safety inspections, and organized supervision teams to supervise eight grassroots companies, so that we realized closed-loop management of safety production in an all-round way. In 2011, subsidiary power generation enterprises inspected 28,830 hidden dangers, achieving rectification and reform with funds of 97.89 million Yuan, rectifying 25,659 hidden dangers (89%), and also inspecting 25 major hidden dangers, rectifying 13 (52%). All hidden dangers not yet eliminated were listed in our rectification plan.



◇ Equipment Control Management

Taking enhancing securing and reliability of the equipment as our objectives, we continued to strengthen the comprehensive management of equipment, and developed technological modifications and solved important problems discovered in major hazard assessments and evaluations. We also stressed maintenance quality, and organized technical innovation projects. In accordance with new requirements on energy conservation and emissions reductions, we modified our equipment and strictly implemented rules on protective equipment and explosion prevention measures. Additionally, we actively promoted technical supervision and management, earnestly made summaries and analysis of technical supervision, strengthened training for technical supervisors, and continued to improve equipment safety levels. In 2011, we kept the leading position in the industry for both equipment utilization rate and unplanned outage rate. In particular, 31 power plants realized no unplanned outages throughout 2011, including key plants like Yuhuan, Baosan, Jinghong, Manwan and others.



Fuel delivery pipeline

Overview of Prize-winning Coal-fired Generating Units

Awards	Capacity	Prize-winning Units
National Gold Medal for Reliability of Coal-fired Generating Units	300 MW	Unit 1 of Dalian Power Plant
		Unit 2 of Dalian Power Plant
		Unit 6 of Huaiyin Power Plant
		Unit 1 of Taicang Power Plant
National First Prize Among Thermal Power Units	1GW	Unit 4 of Yuhuan Power Plant
	600 MW	Unit 1 of Qinbei Power Plant
		Unit 6 of Shang'an Power Plant
	300 MW	Unit 2 of Dalian Power Plant
		Unit 6 of Huaiyin Power Plant
		Unit 1 of Taicang Power Plant

◎ Fostering Safety Culture

◇ Employee Training on Safety

We continuously improved our staff safety education and training system, developed a safety training plan based on practical needs, and carried out safety trainings in a planned, targeted and differentiated way by means of teaching classes, safety warnings, etc. to raise awareness of production safety among our employees and enhance their ability in handling accidents. In 2011, Huaneng organized 20 training sessions for leaders, professionals and technical supervisors with more than 1,205 participants. Furthermore, 30 people passed national CSE qualification examinations successfully. The number of CSE has come to 542 persons.

We have continued to improve safety training modes to enhance their quality and effect. In 2011, Huaneng organized and developed a Multimedia Training

System for Safe Production, which made use of video, cartoons and other ways to fully demonstrate more than 240 typical cases, and effectively improved the immediacy and interest of safety training.



The power plants in Shantou, Huaiyin and Dalat innovated training forms, developed Safety Training and Education Platforms, used multimedia tools for teaching, presented the content in three-dimensional ways with pictures, texts, sounds and videos, and noticeably improved the effects of training.

◇ Safety Culture Activities

We attach great importance to the development of safety culture, constantly innovating the means and methods of cultivating safety culture, created a strong atmosphere for safe production, and cultivated good safe operations habits. In 2011, Huaneng initiated "Safe Production Month," with the theme of "Safety responsibility lays stress on implementation," organized its subsidiary companies to participate in online knowledge competitions, essay competition on safe production, and other activities like the "Safe Production Youth Demonstration Post." Through various publicity and educational activities like a signature campaign, contest on safety knowledge, and safety speech contests, we raised safety awareness among our employees.



◎ Safe Development Performance

- No serious equipment accidents, no serious fire accidents, no major traffic accidents, or large-scale pollution accidents occurred in 2011.
- In 2011, one serious production-related accident leading to death occurred in a power enterprise, the same number as in the previous year.
- Six common equipment accidents in power generation occurred in 2011, up by six over the previous year.
- 62 Class 1 equipment failures occurred in 2011, an increase of 8 compared with 2010. the ratio of unplanned outages was 0.12%, 0.04% higher than 2010.
- No incidents or accidents that may impact the stability and image of the company occurred in 2010.



Inspection of equipment

Overview of the Company's Power Production Safety (2007 – 2011)

Item	Unit	2007	2008	2009	2010	2011
Major equipment accident	times	0	0	0	0	0
Common equipment accident	times	5	4	3	0	6
Casualty-causing accident	times	3	3	2	1	1
Class 1 equipment failure	times	122	114	53	54	62
Unplanned outages	times	142	173	84	83	91
Equipment utilization ratios	%	93.32	91.69	92.27	94.87	94.17

◎ Alarm Bells and Reflection

In 2011, the Company was generally steady as regards the safe production situation, but did not put an end to casualty-causing accidents, which reflected the weak awareness of safety production in a few enterprises, lack of "strict, refined and pragmatic working style," and incomplete implementation of the safety production responsibility system. It also indicated that there still exists a certain gap between overall safe production and management and the objectives of building a world-class enterprise.

Safety responsibility is very important. We shall remain constantly on guard, firmly putting people first and ensuring safe development, and develop a profound understanding that safe production is the top responsibility, top priority, and most important for efficiency for our enterprise. We shall earnestly draw lessons from accidents, find out and reflect on the defects, and take accident prevention as the main direction, and standardized production as an important guarantee while promoting safe production. We shall also strictly implement safety responsibility; give priority to five special aspects covering special action against breach of regulations, inspection and treatment of hidden dangers, safety evaluations, safety training and education, and safety management of outsourcing engineering. Furthermore, we shall strengthen the safety management of coal enterprises, and fully develop safe production and management systems, and standards in power plants, so as to reinforce safety assurance, and ensure intrinsic safety.

Case Study

Shangdu Power Plant

Realizing Intrinsic Safety in Infrastructure Construction Projects

Shangdu Power Plant, located in Zhenglan Banner Shangdu town, Xilin Gol, Inner Mongolia, is an important supporting point in the national power transmission from west to east project, and also one of the power plants in optimizing power grid structure of Northern China. Its power output is directly transmitted to the Beijing-Tianjin-Tangshan power grid through two 500 KV transmission lines. Presently, its total installed capacity is 3720MW, accounting for 6.5% in Northern China's power grid.

Since its establishment, the Shangdu Power Plant has persisted in paying equal attention to power generation and infrastructure construction. In combination with its actual needs, the Power Plant improved the safety management system for the whole process of infrastructure construction. The Power Plant strictly controlled four aspects covering the inspection of construction unit licenses, preparatory work before construction, on-site supervision and management, and the evaluation of construction units. Furthermore, it paid close attention to the safety training for construction personnel, management against breach of regulations, and other issues, so as to ensure the safe construction of infrastructure projects.

Improving the safety management system. Shangdu Power Plant developed a suite of regulations and systems for the whole process of infrastructure construction, which covers management around the objectives of safe infrastructure construction, examination and approval of safety technical measures, supervision and inspection of safety quality, investment in safety protection, and accountability of safety infra-

structure development, and urged the supervision and construction unit to prepare an implementation plan on safety management. The power plant also established a safety assurance system headed by its Party-secretary, and a safety supervision system led by its general manager, defining the working process of safety management on infrastructure construction and staff responsibilities, and forming a complete safety management network system.

Focus on inspecting the qualification certificates of construction units. In the stage of bidding, all construction units had to accept the inspection of safety qualification by the Shangdu Power Plant, which inspects 19 items covering the qualification certificates corresponding to construction projects, safety organizational structure, safety performance, construction safety records over the most recent three years, and other items. In particular, the power plant examines construction personnel medical records, labor contracts, and insurance for work-related injury or accidents. The power plant also signed responsibility contracts on safety objectives, and safety agreements with all construction units, so as to define the safety responsibilities of both parties, and disaggregate and quantify the general objectives and requirements of safety management. Furthermore, the power plant retains 2.5% of the total amount of the project as funds for safety, quality and progress assessment, so as to induce construction units to pay more attention to safety construction management.



Paying great attention to preliminary work. The Shangdu Power Plant discretely and selectively organized different construction units to take level-3 safety education and training to eliminate the phenomenon of giving workers an examination instead of training. All construction personnel have to accept safety training and pass the examination before working. The power plant also carried out appropriate activities like speeches on safety, a safety knowledge contest, safety month and so forth, and conducted emergency drills so that the safety concept would be rooted in the minds of the construction workers. Additionally, the power plant strictly examined the "three measures and one plan" prepared by construction units, strengthening the inspection of scaffolds, tools and equipment before construction so as to ensure operational safety for personnel using techniques, tools, and equipment in different working environments and worked to achieve earlier warnings in safety management.

Strengthening on-site supervision and management. Adhering to the principle of "zero tolerance" and paying close attention to the "three violations," the Shangdu Power Plant set up a board to expose the violations of regulations, issued a Management Manual on Fighting Violations of Regulations in Infrastructure Projects and Standard Atlas of Safety Facilities, set up safety signs and slogans, requested supervision and construction units to keep record of violations, and publicized the safety concept of "zero violations and injuries." Additionally, the Power Plant persisted in conducting daily checks and weekly joint check of safety and civilization, actively carried out special action against breach of regulations, and special inspections for protective equipment, hot work on site, temporary power supplies, scaffolds, use of safety tools and equipment, implementation of a two-ticket system (operation tickets and work tickets), increased focus on higher-risk construction, improved supervision over major projects, and strictly investigated unqualified items and urged rectification.

Strengthening the evaluation of construction units. The Shangdu Power Plant regularly made statistic reports of violations of regulations in each construction unit, along with their safety management performance, evaluated their on-site safe and civilized construction efforts, criticized backward construction units, and praised and rewarded advanced ones. Through this the power plant promoted all construction units to standardize their internal management and strengthen self-restraint, so that the plant could effectively control on-site violations of regulations and ensure the safety of infrastructure projects under a controllable and controlled situation.

Through the complete and detailed process control, closed-loop scientific safety supervision and management, and active and effective incentives, the Shangdu Power Plant put six generating units into operation from April 2003 to December 2011, with no serious casualty-causing accidents, equipment accidents, or fire accidents, and achieved the expected safety objectives in infrastructure construction. Shangdu Power Plant was given the "Ankang Cup Winning Enterprise" award, the "National Labor Merit Certificate," and the "National Civilization Unit" award, along with others.





Transformation, Upgrading and Optimal Development

Concept of Optimal Development

- Optimal development is an inevitable requirement for sustainable development. To promote optimal development, we should take building a world-class enterprise with international competitiveness as the driving force, take improving the quality and efficiency as the center, and take speeding up transformation and upgrading as the focus. We should focus on optimizing and adjusting the power structure, industrial structure and regional distribution, and achieve effective, moderate and orderly development so as to further enhance sustainable development capabilities.

Objectives of Optimal Development

- To increase coal production capacity by 19.7 million tons per year.
- To achieve generating capacity of clean energy proportions to 15%.

Measures of Optimal Development

Optimizing the Power Sources Structure

We continued to accelerate the pace of structural adjustment, optimizing the development of coal-fired power, and making greater efforts in hydropower. We also actively developed wind power, solar energy and other new energy, strived to develop nuclear power, and kept up the pace of development of natural gas power generation, so as to improve the high-efficiency and clean use of traditional energy and increase the proportion of installed clean energy capacity. In 2011, the Company's proportion of newly-installed clean energy came to 32% of total newly-installed capacity. By the end of 2011, the Company's clean energy installed capacity had reached 23.97GW, accounting for 19.12% in the total installed capacity, up by an increase of 1.42% over the previous year.

Optimizing the Development of Coal-fired Power

The Company actively promoted the construction of high-efficiency and large clean coal-fired generating units. The company put into operation a number of coal-fired power generating units with good economic returns and regional distribution, including two generating units at phase three in the Shangdu Power Plant, No.5 generating unit at phase three in Yimin and other coal-electricity integrated projects. By the end of 2011, the Company's 600-MW or over units accounted for 46.78% of the installed proportion of coal-fired generating units, up by 2% over the previous year.

The Company actively spread Yimin's advanced experience and circular economy development mode, and vigorously promoted the construction of power plants like Shangdu and Zuoquan and other projects that integrate the management of coal mine and power plants. The Company earnestly implemented national industrial development policies, accelerated the pace of eliminating backward productivity, and deeply implemented the policy of "developing large generating units, and closing down small ones" to gradually shut down medium-sized and small coal-fired generating units that represent high energy consumption, long time of service, and poor economic efficiency.



Yimin Power Plant

Events

- On March 1st the high-temperature gas-cooled reactor demonstration project of the Huaneng Shandong Shidao Bay Nuclear Power Station was approved at the executive meeting of the State Council.
- On March 19th the Nuozhadu Hydropower Station, one of the key national projects and the hydropower station with the largest installed capacity in Yunan, was approved by the National Development and Reform Commission.
- On September 28th the "National Research and Development Center for High-Efficiency Use of Water Energy and Dam Safety Technology", proposed by the Lancang River Hydropower Company and Clean Energy Research Institute, was approved for construction.
- On December 15th Huaneng smoothly completed a 168-hour full-load test running of the Unit 1 in the first phase of Zuoquan Power Plant, and it is also the company's first indirect air-cooled coal-fired generating unit.
- On December 22nd Huaneng completed its first coal chemical project, the coal-to-methanol project (600,000 tons), in the Huating Coal Company, and held a ceremony for laying the cornerstone of a 200,000-ton polypropylene project in Pingliang, Gansu Province.
- On December 26th the No.7 unit (600-MW supercritical indirect air-cooled unit) of the Qinling Power Plant smoothly went into operation as a phase four project. It is also Huaneng's first "three towers in one" project, which integrates circulating water cooling, smoke-exhaust, and desulfurization into one body.

◇ Making Great Efforts to Develop Hydropower

Adhering to the principle of "by river basins and cascades, in a rolling and comprehensive way", the Company promoted the construction of hydropower in an orderly way. In 2011, the Company vigorously developed hydropower in the southwestern areas, and steadily developed hydropower on the Lancang River and Brahmaputra. The Nuozhadu Hydropower Station was approved for construction. The No.3 and 4 units of the Gongguo Bridge Hydropower Station were put into operation. By the end of 2011, the Company's installed capacity of hydropower reached 11,000 MW, accounting for 8.77% in the total installed capacity.

◇ Pressing Ahead with the Development of New Energy

The Company continued to accelerate the pace of wind power development, and developed profit-oriented and base-style wind farms in an orderly way. The Company promoted the development and construction of 1,000MW-level of wind power bases in the north-east, north China, and other regions comprising the Inner Mongolia and Xinjiang regions, and Gansu and Jiangsu Province. In 2011, three 1,000 MW large-scale wind farm bases in Tongliao, Fuxin and Shandong were put into operation and achieved good economic returns. In particular, the Daqing Wind Farm, China's first wind farm with single unit installed capacity of 3 MW, was completed and put into use. By the end of 2011, the Company's installed capacity of wind power exceeded 7,000 MW.

Additionally, the Company actively developed solar photovoltaic generation and other clean energy generating projects. The Golmud Photovoltaic Power Station I and II were put into production, and the Qingtongxia photovoltaic project was approved. The Company also developed such projects as shale gas exploration, exploitation of coalbed methane, and wave energy generation.



Golmud Photovoltaic Power Station

◇ Striving to Develop Nuclear Power

Under the premise of ensuring safety, the Company attached great importance to the development of nuclear power. On the basis of building the Shidaowan nuclear power base, the Company continued to intensify efforts in talent training, strived to build a high-quality nuclear power talent team, and actively explored scientific standard organization structures and management systems in the construction of nuclear power projects. The Company also analyzed the accident in the Fukushima Nuclear Power Station and fed back lessons and experiences. Additionally, the Company earnestly implemented the national requirements for general inspection of safety in nuclear power stations, carried out self-

inspections, deepened the preliminary work of the project and site reserves, and actively promoted the development of corporate culture with nuclear safety at the core.

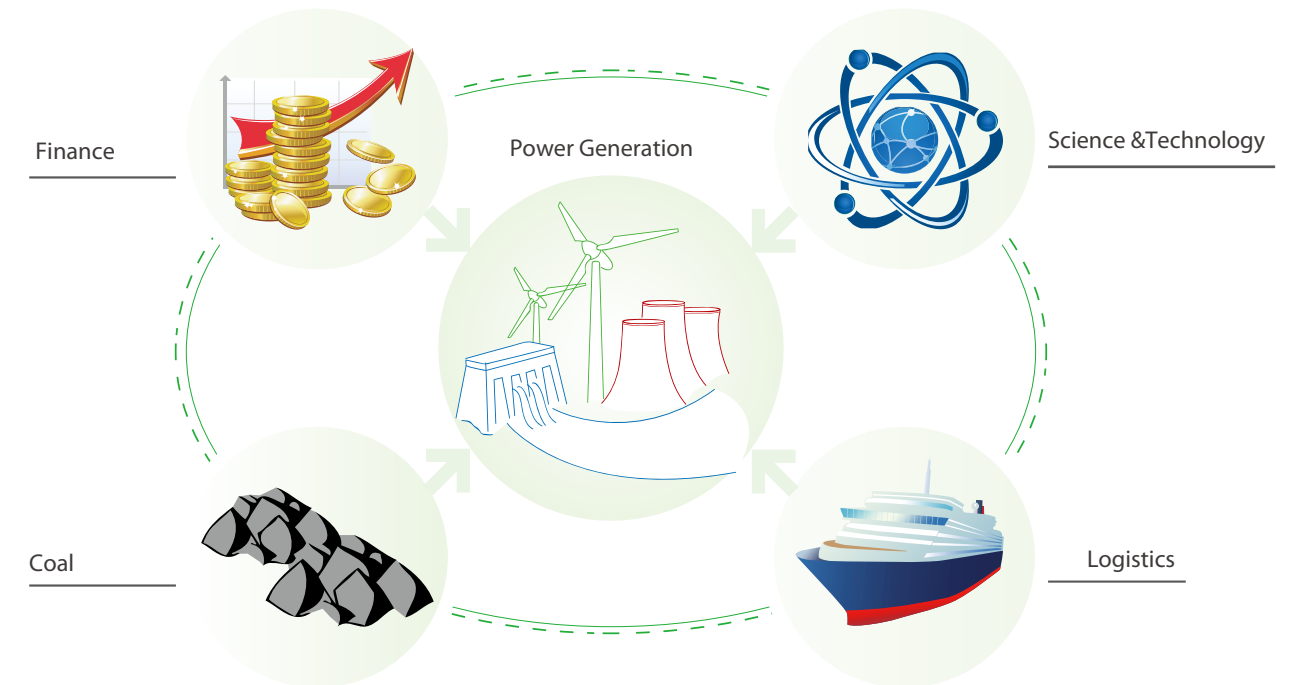
In March 2011, the Shidaowan high-temperature gas-cooled reactor demonstration project was approved at the executive meeting of the State Council, and passed the national comprehensive safety inspection in July. The preliminary work of its PWR (Pressurized Water Reactor) expansion project went steadily on. Furthermore, the Hainan Changjiang and Shandong Haiyang Nuclear Power Projects, in which Huaneng is a shareholder, were smoothly under construction.



Gongguo Bridge Hydropower Station

◎ Strengthening Industrial Synergy

The Company fully implemented the industrial development planning during the period of the 12th Five-Year Plan, optimizing and readjusting industrial structures and strengthening industrial synergy. Taking power generation as the core business, the Company actively developed coal resources, and made overall plans for the development of transportation with coal transportation as the main business. The Company also accelerated the integration between industry and finance, and gave full play to the supporting role of finance. Additionally, the Company speeded up the development of science and technology and emerging industries, built high-efficiency and synergetic industry systems, and strived to achieve coordinated development between scale, speed, quality and benefits.



◇ Actively Developing Coal Resources

The Company actively strived for high quality coal resources and subsequent resources, encouraged existing coal mines to transform for capacity expansion, focused on developing a number of coal projects with strong coordinated capability of industrial development and obvious functional benefits, and fully stepped up the construction of large-scale coal bases and coal electricity bases, so as to form a stable, reliable and economical coal supply system and constantly boost the basic position of the coal industry.

The Company further increased its coal capacity, coal output and the coal self-supply rate. The amount of outgoing coal in the internal market of Hulunbuir increased by 2.73 million tons, up by 47% over the previous year. The North United Power Company successfully opened railway channels to transport coal directly to power plants affiliated to the Huaneng Shandong Company. The Company also advanced the development of such coal bases as Mengdong, Longdong, Diandong and Zhundong in an orderly way. The Yimin opencast coal mine was listed in the ranks of the 20-million-ton level open pit mines in China. Lingdong Coal Mine passed acceptance and went into production. In 2011, the Company's coal capacity reached 64.06 million tons, hitting a record high.



Semi-continuous production system at opencast coal mine



Wharf of Tianchen Port

◆ Planning the Development of the Logistics Industry as a Whole

The Company is fully tapping the potential of existing coal transportation assets and has made overall plans to develop its transportation business, including ports, shipping and private railways. The Company has also strived to build a stable, reliable and efficient coal transportation security system. In 2011, the Company gave full play to the role of coordination between ports and shipping companies. The amount of transported coal at the special field of the Qinhuangdao Port exceeds 16 million tons. The amount of coal shipped by shipping companies like "Times," "Ruining" and "Luneng" accounted for 52.7% of overall amounts of coal transported by water, up by 12% over the previous year. The No. 4 and 5 wharfs at the Bili operational area of Luoyuan Bay were under trial production. Caofeidian Coal Wharf and Haimen Coal Wharf were approved.

◆ Constantly Deepening Industry-finance Integration



Economic activity analysis meeting of financial enterprises

Giving full play to the role of the financial industry, including its service functions and supporting performance, the Company insisted on sound operations, focused on industrial and financial business integration, and established a standard and effective financial holding operation system and risk prevention system. The Company also continued to strengthen and give play to the role of various financial platforms, increased its operating performance, expanded its business field, made innovation in products and services, and established a leading brand in Huaneng's financial market so as to achieve the coordinated development between industrial and financial business, and become an important force in serving the Company's main business while also increasing economic efficiency. In 2011, the Company brought the service functions and supporting performance of the financial industry into better play, and provided all of its subsidiary companies with emergency capital guarantee, low cost financing, insurance claims, CDM development and consulting and other professional services.

◆ Emphasizing the Leading Role of Science and Technology

The Company persists in the guiding ideology of "Serving the main business, and gearing of science and technology to the needs of industrialization", encourages innovation in the system and mechanisms of the science and technology industry, and establishes the scientific research system comprising one base, two organizations, five national research and development centers, and a number of provincial experimental bases, which forms a scientific and technological team comprising over 600 researchers, and further reinforce our leading position in the national energy-related technical field. In 2011, we invested over 200 million Yuan in the development and research of science and technology.

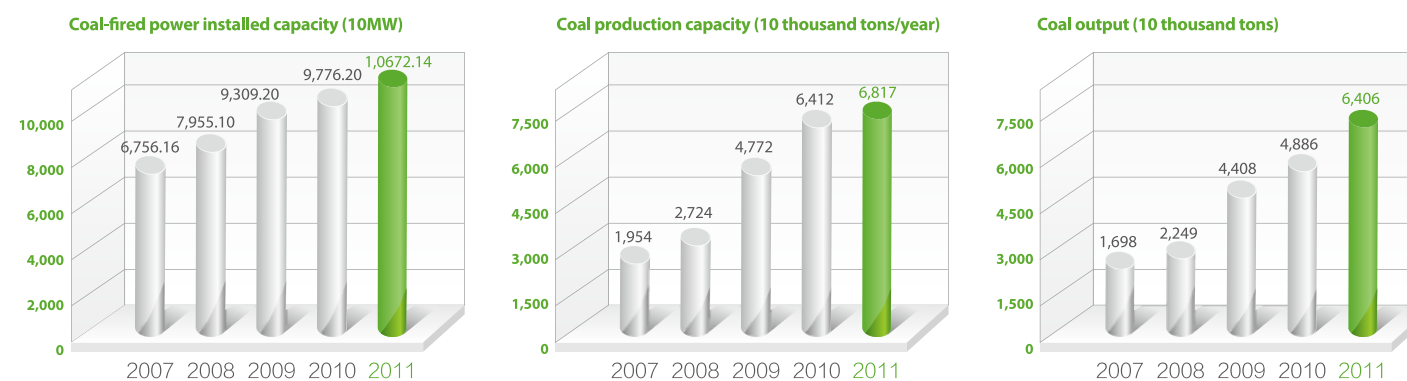
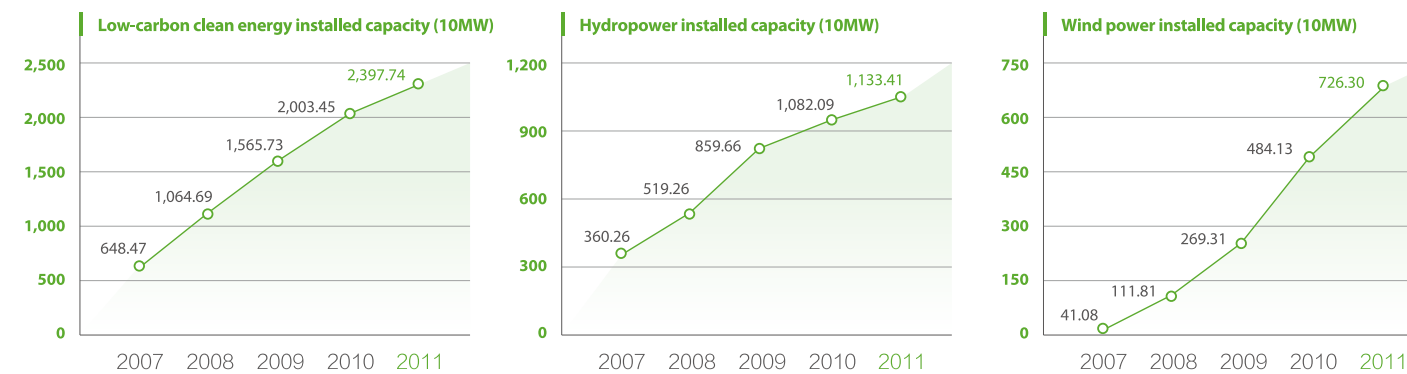


In 2011, we fully implemented the **planning for major scientific and technological projects during the period of the 12th Five-Year Plan**. To be exact, we put Tianjin IGCC demonstration projects into the stage of comprehensive commissioning, made new progress in 1,200MW high-efficient large-scale generating units, solar photovoltaic generation and other advanced generation technology, launched four approved national scientific projects including 700°C ultra-supercritical coal-fired generation technology, and applied on-site bus control systems and "three towers in one" technology with independent intellectual property rights in Qinling Power Plant. Thus, we achieved 15 provincial awards for scientific and technological achievements and 66 national patents, including 22 invention patents.

◎ Planning Regional Development as a Whole

The Company maintained pace with national energy development and made changes according to practical needs. The Company also optimized and readjusted its regional distribution, speeding up development in West China, consolidating in East China, stabilizing in the Central China and improving in Northeast China, so as to form new advantages in regional distribution. The Company made further improvements in the distribution of the domestic power supply, increasing its coverage, striving to improve its share in the power market, and constantly optimizing its regional distribution. As of the end of 2011, the Company had 210 power plants in 29 provinces (autonomous regions and municipalities), accounting for about 11.6% of national total installed capacity. In 2011, the Company strengthened strategic cooperation in the field of energy, and signed 13 strategic cooperation agreements with governments (provinces, autonomous regions and municipalities) or central enterprises.

◎ Optimal Development Performance



Case Study

Huating Coal Company

Giving play to synergetic action and ensuring the supply of coal



The Huating Coal Company, the backbone enterprise of China Huaneng Group in the coal industry, is located in Huating county and Chongxin County, Pingliang City, Gansu Province. As the backbone mining area of the Huanglong coal base, which is one of 13 national large-scale coal bases, it enjoys good geological conditions, covers an area of 134 square kilometers with total coal reserves of 2.85 billion tons. By the end of 2011, Huating Coal Company possessed recoverable coal reserves of 2.18 billion tons with workable reserves of 1.15 billion tons.

For coal electricity supply has an overall impact on economic and social development, and also has a bearing on the daily life of every family. In order to ensure the supply of electricity coal and meet the pressing need of power coal in the power plants around Pingliang in 2011, Huating Coal Company responded to the requirements of the provincial government and Huaneng Group, went all out for coal production, allocating resources in a scientific and reasonable way, striving to improve road capacity, actively coordinating railway transporting capacity, overcame all difficulties and made efforts to increase the coal supply for power generation.

Perfect guarantee measures for the supply of electricity coal. In early 2011, the Huating Coal Company held three consecutive meetings for electricity coal, deploying the supplying work, setting up a leaders group to en-

sure the coal supply, and preparing working plans and emergency plans. The company made overall plans for all aspects, covering mine safety production, coal resources allocation, coordination of transport capacity, supervision of coal quality, and others, so as to ensure all working measures were in place. In November, as the fog, rain and snow occurred in most parts of Pingliang, coal production was seriously affected. Therefore, the Huating Coal Company held an emergency meeting, taking measures to cope with the bad weather's influence on coal transportation, strengthening the coordination of transport capacity, shortening transport periods, and increasing daily transportation. The road capacity reached 11,000 tons per day on average. Additionally, leaders delved deeply into the coal production line to coordinate, check and supervise the work.

Striving to increase coal production output. Facing the pressing situation of coal supply, Huating Coal Company accelerated its construction of projects, and steadily increased the output of raw coal. Under the premise of ensuring safety, each coal and technical department strengthened the links of production, technology and management, and intensified dispatching and scheduling. They completed removal of 19 fully-mechanized coal caving faces in a safe and high-efficiency way and scientifically adjusted the off-line maintenance plan to realize



balanced production and ensure the steady supply of coal. Additionally, the Huating Coal Company achieved mining technology reforms, eliminating backward production, applying a series of advanced technology solutions including comprehensive excavation, mesh-bolt support, belt conveyance, shock wave monitoring, network integration and digital management, to improve the technical equipment level of each mine. The Huating Coal Company also concentrating on solving such problems as mine pressure, tunnel support, mining in deeply inclined full-mechanized mining faces, mining with small pillars, and preventing spontaneous coal combustion and gas, with the result that the company increased its coal capacity from 8 million tons to over 18 million tons, an increase of 125%.

Giving full play to synergetic effect. In 2011, in order to meet the demand for coal surrounding power plants, further improve the road capacity, and effectively give play to the synergetic effects between coal companies and power plants, the Huating Coal Company invested more than 60 million Yuan to purchase 150 coal trucks, and implemented the system of "Making

arrangements, inspection tours and reporting every day" to provide China Huaneng Group's power plants with 5.292 million tons over the year. At the meantime, the Huating Coal Company keeping close touch with the Railway Administrations in Xi'an and Lanzhou, accelerated the construction and reconstruction of loading stands, optimized the loading processes, adopted "substituting empty train with full one", increased enterprise-owned trains and other methods, so as to ensure timely loading and smooth railways for the transportation of electricity coal.

In 2011, the Huating Coal Company's production reached 18.7008 million tons of raw coals, achieved drifting footage of 48669.4 meters, and maintained 33,092 meters of tunnels. On the basis of ensuring safety, the Huating Coal Company realized continuous supply of coal, maintained steady and fast development momentum and made new breakthroughs in safe production, management and operation construction project, and others, thus making important contributions to corporate development and regional economic and social development.





Energy Conservation, Emission Reduction and Green Development

Concept of Green Development

- Green development is indispensable to sustainable development. Green development requires maintaining the industrial policy of energy conservation and emission reduction, relies on strict management and technological progress to tap the potential of energy conservation; improves the high-efficiency and clean use of energy and resource; and means devoting ourselves to ecological and environmental protection.

Objectives of Green Development

- To achieve a coal consumption rate of 321g/kWh.
- To achieve the annual objectives defined in the Special Plan for Energy Conservation and Environmental Protection (2011-2015).
- To build 10 energy-saving and environmentally-friendly coal-fired power plants, keeping the leading position in the general consumption rate of the power industry.
- To avoid major environment pollution accidents.

Measures of Green Development

Strengthening the Management of Energy Conservation and Environmental Protection

Strengthening Organizational Leadership

We made a point to integrate energy conservation and environmental protection into production, operations and the entire process of infrastructure construction, constantly improved the three-level management system comprised of the "group company — regional / industrial companies — grassroots companies", strengthened the three-level working network, including grassroots companies, workshops and the group, and formed a level-by-level working system, in which the leaders of each administrative department at all levels were responsible for general environmental protection. We also strengthened scheduling and management of energy conservation and environmental protection, made regular analysis of its focus, integrated resources effectively, and implemented work in an overall way so as to form a working pattern featuring horizontal integration, common action of higher and lower officers, and the participation of all staff.

Improving Management System

We laid emphasis on the establishment of systems around energy conservation and emission reduction, continuously standardized and improved the incentives appraisal system according to the requirements of energy conservation and environmental protection, and strengthened energy conservation in production, operations and infrastructure construction, so as to effectively press ahead with the implementation of work in energy conservation and environmental protection during the 12th Five-Year Plan. We actively carried out trainings on energy conservation and environmental protection for professional technical backbones and managements. In 2011, we conducted over 40 various trainings with more than 6,000 participants.



Huaneng Nanshan Power Plant

Events

- On March 29th the Huaneng Yuhuan Power Plant completed retrofitting of four sets of 1000MW ultra-supercritical units of over 1 GW for denitrification, making this the world's largest denitrification engineering project.
- On April 1st the Huaneng Group signed the Cooperation Agreement on Transforming Saline-alkali Land with By-products from Desulfurization with Tsinghua University.
- On June 15th the Company was awarded the title of "Excellent Enterprise in Energy Conservation and Emission Reduction During the 11th Five-Year Plan" by SASAC.
- On September 29th the Company's research and demonstration project on carbon capture devices (120,000 tons/year) for coal-fired power plants was awarded the National First-grade Energy Scientific and Technological Progress Prize.
- On November 8th the Jianxing-Huaneng Carbon Assets Investment and Development Fund, China's first special private carbon emissions fund, was officially established.

In 2011, we formulated the documents, including Planning for a Energy-saving and Environment-friendly Enterprise (2011-2015); Standards on Excellent Environmentally-friendly Coal-fired Power Plants; Guidance on the Design, Maintenance and Operation of Desulphurization Systems. We made clear our objectives, tasks, measures and timetables of energy conservation and emission reduction during the period of the 12th Five-Year Plan, and assigned responsibilities to each regional company and grassroots enterprise to ensure the performance of responsibilities level by level with clear objectives and thorough implementation.

◇ Strengthening Supervision and Management

We regard our work in energy conservation and environmental protection as an important part of the performance of evaluation and management, and have worked to link this to compensation through an evaluation system. We have implemented a one-vote veto system for major energy conservation and environmental protection objectives that disqualify enterprises from applying for the "Four Excellent Teams" if they have failed to achieve annual objectives and meet requirements. This helps form an incentive and constraint mechanism with clear awards and punishments.

In 2011, we improved the systems for statistics, supervision, analysis and assessment of environment protection performance, and established a system for online supervision and comprehensive analysis of energy conservation indicators. We regularly issued a grassroots enterprises index that evaluated energy conservation and environmental protection, steadily carried out benchmarking analysis, and took special and effective action to rectify problems, so as to form a dynamic closed-loop supervision mechanism.

◎ Steadily Promoting Energy Conservation and Emission Reduction

◇ Strengthening Detailed Management

Starting with basic management, the company strengthened energy conservation treatment in newly-operating units as well as units with excessive energy consumption, along with key-type generating units. We also selected technicians with rich experience in energy conservation and formed them into a cross-regional and interdisciplinary working group to carry out special work on energy conservation and emission reduction.

In 2011, we made a special diagnosis of energy conservation in 33 key generating units, and carried out special energy-saving rectification actions in 27 key power plants. Through focusing on small indicators, benchmarking for single consumption of auxiliaries, and paired treatment, we achieved remarkable results, decreasing the coal consumption rate of 52 units by over 5 g/kWh and dropping station service power consumption rates in 77 units by 0.2% over the previous year.

Huaneng Jinling Power Plant



CO₂ capture devices in the Shidongkou Power Plant II

◇ Reducing Water Consumption

The Company adopted many water-saving technologies, including air-cooling, desalination of sea water, sewage treatment, using recycled water, dry removing slag and pneumatic conveying ash, built a water-saving power plant tailored to local conditions, graded water according to its quality so as to reduce consumption of fresh water, and realized nearly zero discharge of waste water. In 2011, the Company achieved water consumption rate for power generation of 1.28 kg/kWh, down by 0.02 kg/kWh over the previous year.

The Company advocated the concept of green office, actively promoted the construction of official document platform, and kept modern paperless office to minimize paper waste. The Company also strengthened operation and management of air-conditioning and heating system, requiring the temperature of air-conditioner not less than 26°C in summer and not higher than 20°C in winter, to achieve great effect in electricity conservation.

◇ Implementing Energy-saving Modifications

We implemented *Guidelines on Huaneng Thermal Power Generating Unit Energy Conservation*, and *Guidelines on Huaneng Thermal Power Generating Unit Power Conservation*. Relying on technical progress, we extensively tapped the energy conservation potential of active power generating units, carried out flow path retrofitting of turbines and opening cylinders to increase efficiency, and reduced the steam consumption of turbines. We also optimized cold-end systems, drainage systems, coal pulverizing systems, wind and smoke systems, and adjusted and tested the performance of auxiliary systems. We actively adopted motor frequency conversion technology, boiler plasma ignition, and other technology to reduce the power and oil consumption of generating units, to utilize all remaining energy, improve heat recovery, and improve the operational efficiency of the units.

◇ Creating an Excellent Energy-saving and Environmentally-friendly Enterprise

We earnestly implemented *Planning on Creating an Excellent and Environmentally-friendly Enterprise during the 12th Five-Year Plan* and further improved evaluation standards. We also standardized and perfected our preparation and planning on energy conservation and emission reduction, training on energy conservation management, analysis and statistics of energy conservation indicators, fuel charging management, and energy conservation supervision and management. Relying on the Xi'an Thermal Power Research Institute, we tackled some key technical problems like optimizing governing valves of large capacity generating units, experimenting with blending and burning techniques, optimizing the powdering system, and reducing power plant electricity consumption rates in key generating units. In 2011, 17 power plants made positive progress in developing excellent environmentally-friendly power plants, including the power plants in Tongchuan and Taicang.

◎ Tightening Pollution Emissions Control

◇ Making Greater Efforts in Modification of Desulphurization and Denitration

We retrofitted generating units in an orderly way to increase the capacity and efficiency of desulphurization systems and equipped them with denitrification devices. In 2011, we increased capacity and efficiency of 3,070 MW desulphurization systems; 1,660 MW units were equipped with denitrification devices. We continued to reduce the total amount of SO₂ emissions, effectively controlled the total amount of NO_x emissions, and pushed forward mercury emissions monitoring in three pilot power plants in Fuzhou, Yushu, and Beijing respectively.



Diagnosing energy conservation

◇ Reducing Emissions of Greenhouse Gases

We actively developed the key technology of carbon capture and demonstrated operation, and formed our own CO₂ capturing technology with independent intellectual property right, capturing CO₂ from combustion flue gas. In 2011, capture devices (120,000 ton/year) in Shidongkou Power Plant II and another device (3,000 ton/year) in Beijing Cogeneration Power Plant were in stale operation. As the main initiator, Huaneng actively promote the establishment of the National Alliances of CO₂ Capture, Utilization and Storage (CCUS).

◇ Comprehensive Use of Waste

The Company vigorously advocated the development mode of “resource – product – waste – recycling resources”, adopted technology such as that of separating fine coal and ash, grinding coal, and producing new types of building materials with slag and gypsum to promote the comprehensive use of by-products and reduce emissions of solid waste. We recycled coal-fired power plant substances in closed loop and resource-efficient ways. In 2011, the company achieved a slag and ash utilization rate of 76.34%.

◇ Strengthening Carbon Asset Management

The Company established a sound system of pollution emission and carbon asset management, formulated **Regulations on Clean Development Mechanisms**, strengthened the carbon asset research in the post-Kyoto Protocol age, actively participated in the development and trading of carbon asset in markets at home and abroad, and promoted the development of CDM projects. In 2011, the company registered 29 CDM projects successfully with the United Nations.

◎ Optimizing the Design of New Generating Units

We intensified our efforts in the inspection and guidance of commissioning newly-built power generating units, strictly implemented **Standards on Infrastructure Engineering Design, Technical Reference on Infrastructure Engineering Energy Conservation**, and made great efforts to promote the **Model Coal-fired Power Plant Design** and **Model Wind Farm Design**, so as to effectively improve the commissioning indicators of generating units. We strictly implemented the “Three Synchronizations” for environmental protection in existing and new construction projects, strengthened the overall plan and management of designing, constructing and commissioning power plants, and ensured that environmental protection facilities achieve the “Three Synchronizations”.

In 2011, during a 168-hour commissioning of newly-built power generation units at or above 300 MW, the company achieved better results than the rates of coal consumption and power plant electricity consumption to reach or approach the designed values, thus improving the performance of newly-built power generation units. The company also completed performance tests of some generating units, including the Jinling No.2, Weihai No.5 and some other Coal-fired power generation units, whose performance met or exceeded the designed values.

◎ Protecting the Environment

Adhering to the principles of “development with protection”, the company attached great importance to the protection of the natural environment in the construction of projects. For hydropower projects, we gave full consideration to the requirements around power generation, flood control, irrigation, sand blockage, shipping, soil and water conservation, aquaculture, tourism, regional development and others. We actively studied and took measures to protect the surrounding environment and biodiversity, and implemented environmental protection measures during the period of project construction so as to harmonize the development of projects with the ecological environment.

While developing hydropower, the company established fish reproduction grounds, wild animals rescue stands, and rare botanical garden to build an “Immigrant home” for local animals and plants. In 2011, the Wild Animal Rescue Stand around the Nuozhadu Hydropower Station quarantined 16 rare animals they rescued, and then set them free in the forest. At the end of 2011, the Lancang River Hydropower Company had invested nearly 450 million Yuan to protect the ecological environment around the Nuozhadu hydropower projects.



Nuozhadu Rare Botanical Garden

Green Development Performance

- The Company achieved coal consumption rate for power generation of 318.68 g/kWh, down by 4.04 g/kWh over the previous year.
- The Company achieved station service power consumption rate of 5.08% , down by 0.14% over the previous year.
- The coal consumption rate for power generation of units of over 600 MW was reduced by 3.38 g/kWh over the previous year. The Company achieved advanced levels in the power industry for the energy consumption of generating units such as supercritical wet or air cooling units of 600 MW, and wet cooling units of 350 MW and 300 MW.
- No serious environmental pollution occurred in 2011.



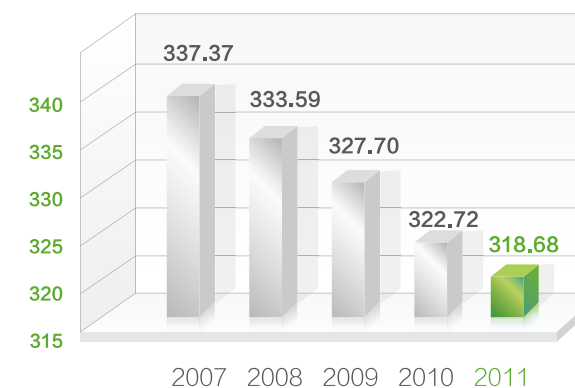
Coal Consumption Rate for Power Generation

318.68 g/kWh

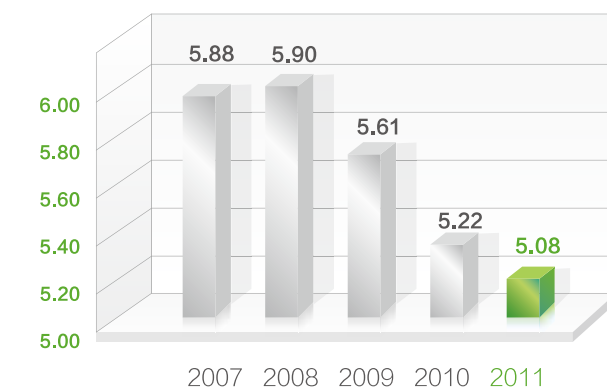
Station Service Power Consumption Rate

5.08 %

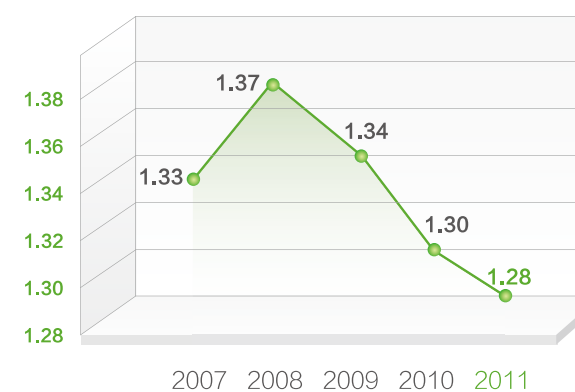
Coal consumption rate for power generation (g/kWh)



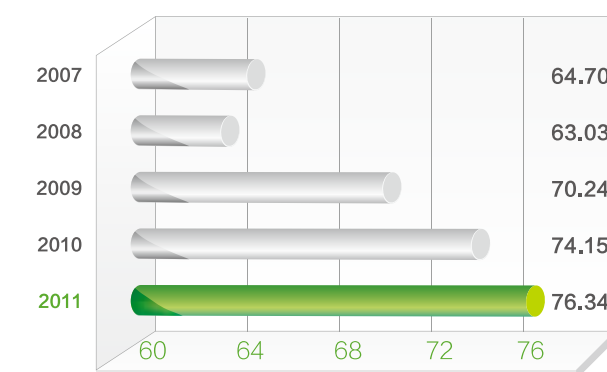
Station service power consumption rate (%)



Water consumption per unit of power generated(kg/kWh)



Slag and ash utilization rate (%)



Case Study

Huaneng Beijing Cogeneration Power Plant

Building a world-class green power plant



The Huaneng Beijing Cogeneration Power Plant, located in the southeast of central Beijing, was the first clean, high-efficiency and environmentally-friendly power plant in China, which combines the technology of CO₂ capture, desulphurization, denitration, urban sewage water utilization and poly-generation of power, cooling and heat. It has an installed capacity of 1,768 MW, provides heat for an area of 63 million square meters, and ensures about 10% of the power supply and 1/3 of the heat supply for Beijing. It plays an important supporting role in the energy supply system of Beijing.

The Beijing Cogeneration Power Plant carries out the capital's strategy of developing safe, clean, high-efficiency and low-carbon energy, taking the creation of a resource-saving and environmentally-friendly power plant as its objective and integrates the concept of green development into production, operations and the entire process of development, actively exploring new ideas of energy conservation, innovating new methods of environmental protection, and striving to build a world-class green power plant.

Improving energy efficiency. The Beijing Cogeneration Power Plant made positive

use of advanced technology, and represents an increase in investment in equipment upgrading. It uses advanced co-generation of power and heat technology in domestic companies, with average thermal efficiency over 60% for the whole year, which is about 20% higher than that of conventional condensed steam power plants. This technology could save 400,000 tons of standard coal per year, and has saved a total of more than four million tons of standard coal since it was put into operation. In 2008, the company took the lead to adopt the technology of poly-generation of power, cool and heat, installed two sets of 1.25 million calorie LiBr refrigeration units with hot water sources to provide cool sources for production and living buildings equivalent to 22,000 square meters, which may reduce power plant electricity consumption by 1.7 million kWh. It also invested over 50 million Yuan to build the first secondary sewage recycling system, which may save 12 million cubic meters of fresh water per year, greatly relieving Beijing's water shortages. The Huaneng Beijing Cogeneration Power Plant was the first power plant that adopted the technology of chimney and cooling tower integration, which increases the utilization rate of chimney energy and decreases the temperature of circulating water, in so doing improving the heating efficiency of the power plant.

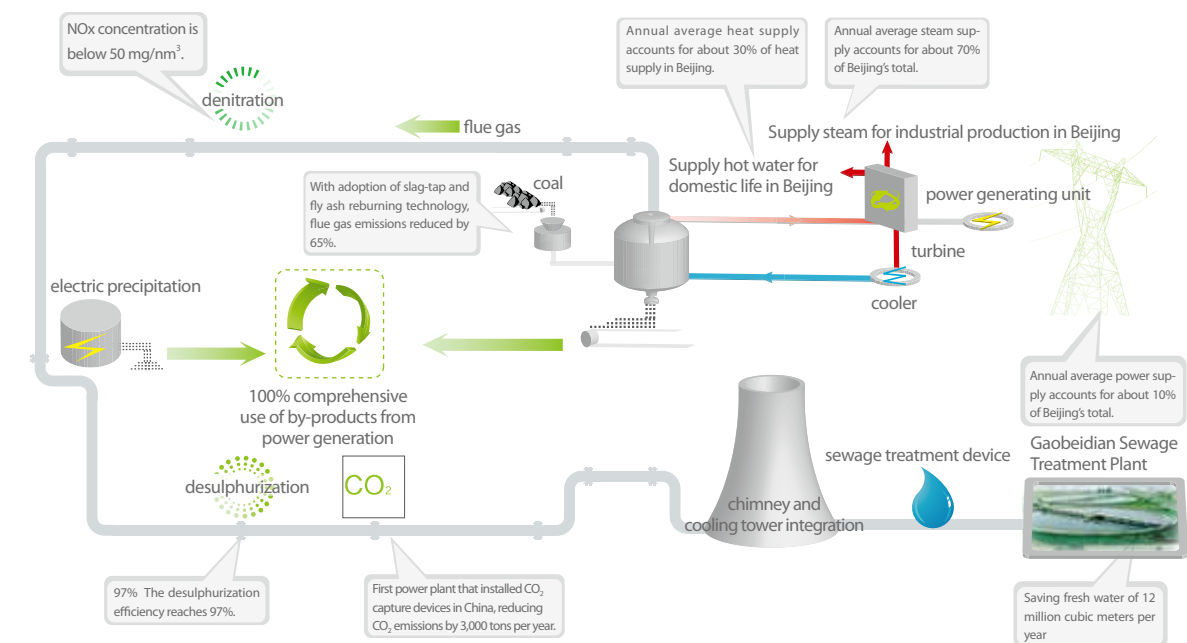
Reducing emissions of pollutants and greenhouse gases. The Beijing Cogeneration Power Plant has unceasingly explored environmental protection work, brought forth new ideas, and strengthened the control of waste emissions to effectively control and reduce emissions of pollutants and greenhouse gases. In 2005, it invested 450 million Yuan in the modification of desulphurization systems, adopted the technology of mature limestone-gypsum wet desulphurization and the most advanced desulphurization process. After the desulphurization device was put into operation, the dust emission concentration was reduced to 20mg/m³, achieving top results in China. SO₂ emissions concentrations were reduced to 15 mg/m³, with

desulphurization efficiency of 97%, better than the standards of Level-I air in China. In response to the national environmental protection policy, in 2006, the Beijing Cogeneration Power Plant invested 180 million Yuan to construct denitration projects, in which it adopted the safer technology of urea's pyrolysis, which has an efficiency higher than 90%, and reduces NO_x in fumes to below 50 mg/nm³, up to globally advanced levels. Adopting Huaneng's process and utilizing its core technology and intellectual property rights, the Beijing Cogeneration Power Plant built the first 3,000 ton/year CO₂ capture demonstration project in China in 2007. After refining the system, it was finally able to produce CO₂ products with a purity of 99.99%. By the end of 2011, it had an annual capture capacity of 3,000 tons, which means it has model demonstration potential in reducing coal-fired power plant CO₂ emissions.

Actively developing new-type gas-fired power generation. Proceeding from the general strategy of energy development in Beijing, the Beijing Cogeneration Power Plant started to build two sets of combined gas-fired and steam heating units in August 2010 and completed the project in December 2011, increasing power capacity by 923 MW and increasing heated areas by 13 million square meters. The simultaneously installed environmental facilities were put into operation at the same time, including the facilities of denitration, noise reduction, and water treatment. It was the first time for the power plant to adopt the technology of gas engine unit belt SSS clutch back pressure supplied heat in the project. It has won several first places in heating capacity, energy consumption and thermal efficiency among the same types of units, and became the demonstration project of the Beijing Gas-fired Thermal Power Center.



In addition, the Beijing Cogeneration Power Plant cooperated with the municipal sewage treatment plant to carry out power generation with blending and burning sludge and succeeded in a feasibility experiment. The blending proportion was controlled at 3% to 5%, with a capacity of 100,000 tons of sludge per year, which is equivalent to dissolving all of the sludge produced in the Gaobeidian Sewage Treatment Plant, thus achieving a harmless way of recycling and disposing of sludge. In 2011, the Beijing Cogeneration Power Plant achieved the coal consumption of power generation of 281.27 g/kWh, which was 53.73 g/kWh lower than the national average, and equivalent to savings about 400,000 tons of standard coal. It also achieved a leading place and internationally advanced levels in safety, technology, and environmental protection indicators, laying a solid foundation for striding into the ranks of world-class green power plants.





Intensive Management and Healthy Development

Concept of Healthy Development

- Healthy development strongly supports sustainable development. To achieve healthy development, we must insist modern management and operates in compliance with all laws and regulations. We shall expand our operational scale, and enhance profitability. We must realize value preservation and growth of state-owned assets and continue to build Huaneng into a highly-efficient company that benefits all.

Objectives of Healthy Development

- To achieve 600 billion kWh in power output;
- To achieve coal production of 60 million tons;
- To achieve sales revenue of RMB 260 billion Yuan;
- To secure power projects above 12 GW and coal projects above 8 million tons per year.

Measures of Healthy Development

Improving Management Levels

Performance Management

We continuously improved our performance management system with budgeting at its core, utilizing benchmarking, assigning responsibility, and linking performance and compensation. We continued to carry out annual performance assessment work for the performance of safety, business, development and Party building as the main body of work. Keeping in mind rising coal prices, we adopted a number of incentive measures, including readjusting power generation and coal use, reducing controllable expenses, and rewarding individual contributions to total profits, so as to encourage each subsidiary company to constantly improve business profits. We also improved our incentive and constraint mechanisms, and fully implemented an annual salary system for heads of each enterprise, and linked their monthly compensation with their profits.

We perfected a business performance evaluation indicator system, increased EVA index evaluation weighting, developed **Guidance on Further Strengthening Management of Economic Value Added**, and conducted EVA evaluation in all subsidiaries units so as to improve the management level of EVA in an all-around way.

Budget Management

We further improved the comprehensive budget management system with the financial budget as the core, and gave full play to its driving role in optimizing the allocation of resources and enhancing the capabilities of sustainable development. In 2011, we comprehensively analyzed both the internal and external business situation, and developed a budget program based on principle of "readjusting the structure, improving efficiency, controlling risks and creating the best" in combination with development trends principle of in the electricity, coal and capital markets, and our own business development capabilities. We clarified the roles of each professional department of the Group Company regarding budget management, and strengthened the coordination and unity of the key elements in the budget, thus improving achievements in the main budget index over the previous year.

Events

- On March 21st the Company won the 2011 "Power Generation Company of the Year" award at the 14th Power and Electricity World Asia Congress.
- On July 14th the Company created a historical record in power generation, generating 1.963 billion kWh in a single day, up by 28.52% over the previous year.
- On September 30th the Company acquired a 100% stake in the Maweigou Hydropower Co., Ltd., with total installed capacity of 55 MW in Enshi city of Hubei province.
- On October 17th the non-public issued stock of the Inner Mongolia Huaneng Power Plant, one of Huaneng's shareholding enterprises, was unconditionally approved by the issuance examination committee of the China Securities Regulatory Commission (CSRC).
- On November 24th Huaneng Power International was awarded the prize of "Most Popular Listed Company among Investors in the Chinese Mainland and Hong Kong" at the Golden Bauhinia China Securities Award ceremony.
- On December 2nd the Company was awarded the title of "2011 Valuable Management Model" at the 11th China Annual Management Conference.

Wenchang Wind Farm



◆ Comprehensive Risk Management

We actively promoted the construction of internal control mechanisms with risk prevention as the focus, and combined the analysis of medium and long-term trends to determine risk factors. We strengthened yearly and daily risk evaluations and prepared comprehensive reports on risk management. We also tracked risk year by year, with continuous monitoring, intensified risk warnings, and improved system processes, so as to effectively prevent financial, management and legal risks. In 2011, the Company prepared and issued *Huaneng's Internal Control Manual (Trial)*.

We continued to strengthen supervision and rectification in auditing. In 2011, we completed 1,019 audits, made 2,068 suggestions on rectification, reduced engineering investment by 273 million Yuan after auditing, and carried out 13 post-project evaluations so as to give effective play to the "Immunity Function" of internal auditing. The Company comprehensively promoted education and training around law compliance, fully completed three-year objectives of legal work, and further improved mechanisms for preventing legal risks.



Project analysis and evaluation

◎ Enhancing Power Marketing

◆ Expanding the Power Market

We focused on the analysis of the electric power market, and urged each subsidiary to ensure the coordination of work for power generation plans in accordance with the working ideas of "Earlier, more effective and focused." We gave full play to the role of our tertiary marketing network, persisted in daily analysis, benchmarking once every ten days, and with monthly summaries to effectively strengthen marketing analysis in a timely and scientific way. The Company strived for power supply plan improvements, increased power efficiency, and ensured the leading position of the Company by unit usage hours. We also optimized the power supply structure and actively readjusted power

voltage to increase efficiency and make greater marginal power generation contributions.

In 2011, our electricity output acceleration rate was 1.2% higher than the national level. We increased equipment utilization by 115 hours over the previous year. The utilization hours in 25 areas were higher than the local average levels, and we maintained leading levels in 16 areas including Beijing, Ningxia, Jiangsu, Zhejiang, and the eastern part of Inner Mongolia. We achieved obvious effects in adjusting voltage to increase efficiency, and realized 16.5 billion kWh in savings through our alternative energy policy. The utilization hours of 600MW or higher generating units came to 5,640 hours, an increase of 338 hours over the previous year. We also optimized the structure of our electricity account settlement, increasing the electricity base by 0.86%.



Hainan, Chongqing and Jiangxi. The Gongguoqiao Hydropower Station also implemented the electricity price.

◆ Strengthening Recovering of Electricity Bills

We intensified our efforts to recover electricity bills and old debts in key areas, managed contracts strictly to increase both production and income, and strived to increase economic profits. In 2011, we achieved a 100% recovery rate for all annual cumulative electricity bills.

◆ Striving for Reasonable Electricity Pricing

We actively strived for a reasonable electricity and heating price, and strived to improve comprehensive price settlement levels. In 2011, after three state adjustments of on-grid prices and coal-fired power output times, all of our subsidiary companies closely cooperated to ensure the implementation of the electricity tariff. The Company's settlement price was stable, with occasional upward adjustments, and moreover, the remarkable effect occurred in the companies with large market shares, like the companies in Shandong,

◎ Speeding up Development and Construction

◆ Project Preparation Work

Adhering to the principles of "extensive investigations, best selection, good construction, and strict management" in the Company's project management, the Company strived to maximize investment returns of infrastructure construction projects. In 2011, the Company actively promoted the development of projects with large capacity, low emissions and good benefits, achieving approved power projects of 16,663.5 MW, and completed 138.86% of annual objectives, including low carbon and clean energy projects of 10,843.5 MW, accounting for 65.07% of total approved capacity. Some key projects were also approved, including the second phase project in the Shidongkou Power Plant II and Unit 6 in the third phase of the Fuzhou Power Plant. Over the year, the Company secured coal projects of 1.8 million tons and port projects of 72.7 million tons.

◆ Infrastructure Construction Management

We extensively promoted institutionalization and standardization in infrastructure construction. In 2011, we developed six rules and regulations for infrastructure construction management, including *Interim Provisions on Evaluating and Rewarding Hydropower Projects*, *Interim Provisions on Evaluating and Rewarding Wind Power Projects*, *Interim Provisions on Managing the Progress of Power Projects*, *Rules for Implementation of Performance Evaluation in Infrastructure Construction (2011)*, *Measures on Risk Control of Power Project Construction*, and *Interim Regulations on Survey, Design and Management of Hydropower Projects*.

With more efforts around the guidance and supervision of infrastructure construction quality, the Company actively promoted detailed management, model process management and the creation of excellence. The Company strengthened quality controls and delivery acceptance management in all stages, including equipment surveillance work, quality inspection, generating unit commissioning, performance evaluations and others, so as to effectively promote project quality.



The expansion project in Phase IV of the Huaneng Tashidian Power Plant is one of the key power projects that will be put into production during the 12th Five-Year Plan in the Xinjiang Uygur Autonomous Region, and is also an important supporting point of power grid connections in the southern and northern parts of Xinjiang. On November 23rd, the power plant achieved great success in igniting the boiler of the first generating unit, and achieved good results in various technical and economic indicators, and outstanding economic returns, so that the project became one of the year's highlights.



In 2011, the Company's installed capacity of new power projects reached 12.152 GW, including 8.241 GW of coal-fired power, 923 MW of pneumoelectric power, 491 MW of hydropower, 2.422 GW of wind power, 50 MW of photovoltaic power, and 25 MW of biomass power generation. As the Company made striking improvements in project quality, we had 5 projects awarded the silver prize in the National Excellent Power Project, and 14 projects awarded the National Excellent Power Project Prize.

List of Projects Named Excellent Power Project in 2011

Prize-winning Projects	Capacity	Prize
Phase II Extension Project of Huaneng Jinggangshan Power Plant	2×660MW	Silver Prize of National Excellent Power Project
Phase I of Huaneng Jiutai Power Plant	2×660MW	Silver Prize of National Excellent Power Project
Phase I of Huaneng Tongjiang Wind Power Plant	99MW	Silver Prize of National Excellent Power Project
Project of Huaneng Changyi Wind Power Plant I	49.5MW	Silver Prize of National Excellent Power Project
Project of Huaneng Tongliao Zhurihe Wind Power Plant	147MW	Silver Prize of National Excellent Power Project
Project of Huaneng Tongliao Zhurihe Wind Power Plant	147MW	China Electric Power Quality Engineering Award
Phase I of Huaneng Tongjiang Wind Power Plant	99MW	China Electric Power Quality Engineering Award
Phase I of Huaneng Laoting Wind Power Plant	49.5MW	China Electric Power Quality Engineering Award
Phase I of Huaneng Qidong Wind Power Plant	91.5MW	China Electric Power Quality Engineering Award
Project of Huaneng Changyi Wind Power Plant I	49.5MW	China Electric Power Quality Engineering Award
Project of Huaneng Inner Mongolia Keyouzhong Banner Gaoliban Wind Power Plant	49.5MW	China Electric Power Quality Engineering Award
Phase I, II and III of Huaneng Fuxin Wind Power Plant	501MW	China Electric Power Quality Engineering Award
Phase I of Huaneng Jiutai Power Plant	2×660MW	China Electric Power Quality Engineering Award
Phase II Extension Project of Huaneng Jinggangshan Power Plant	2×660MW	China Electric Power Quality Engineering Award
New Generating Unit Project of Huaneng Changchun Thermal Power Plant	2×350MW	China Electric Power Quality Engineering Award
Generating Unit 1 in Phase II of Huaneng Jinling Power Plant	1,000MW	China Electric Power Quality Engineering Award
Project of "Developing Large Generating Unit and Close Down Small Ones" in Huaneng Baiyanghe Power Plant	2×300MW	China Electric Power Quality Engineering Award
Installation of Air-Cooled Island in Phase II of Huaneng Pingliang Power Plant	2×600MW	China Electric Power Quality Engineering Award
New Project of Huaneng Changchun Biomass Thermal Power Plant	2×15MW	China Electric Power Quality Engineering Award

Standardizing Fuel Management

We strived to consolidate the fuel supply in main channels, made greater efforts in importing coal and purchasing domestic coal, and gave play to the role of centralized procurement and unified allocation, so that we ensured the fuel supply and controlled its price. In 2011, we increased important contract fulfillment rates by 5.7% and imported 27.69 million tons throughout the year, up by 0.94 million tons. We purchased 33.82 million tons of domestic coal, achieved a self-supply rate of power coal of 12.1%, up by 1.2% over the previous year, and blended and burned 18.68 million tons of lignite coal, an increase of 9.16 million tons over the previous year.

We strengthened intensive management of seaborne coal, and directly transported 65.21 million tons of coal to coastal power plants, up by 42% over the previous year. By means of "Sea to river, sea to land," we transported and supplied 8.86 million tons of coal. All of these played a positive role in the supply of coal for central and eastern China.

We established a closed-loop indicator system throughout the fuel management process and formulated and announced standards on coal expenses in the

Central control of coal sampling, preparation and testing



plant. We also rated losses, promoted the automatic fuel regulatory system of the Baotou Power Plant II, and carried out experiments in power plant benchmarking in fuel management, so that we achieved coal calorific value differences of 87 calories/kg between coal as received and coal as fired, dropped by 14 calories/kg over the previous year.

Fulfillment rate of important contracts up by
5.7%

Imported coal throughout the year
27.69 million tons.

Self-supply rate of power coal
12.1%

Blended combustion of lignite coal
1,868 million tons.

Strengthening Cost Controls

We further perfected the comprehensive cost management system that takes strategy as its orientation, takes assets as the main line and covers the life cycle of the assets. We issued **Guiding Opinions on Further Strengthening Cost Management**, improved the all-staff, full-process and all-round cost management system, and enhanced our cost control capabilities. In 2011, we continued to promote standard construction, thus the quota standards covering production, operations, construction, human resources and other aspects were basically formed. We also strived to float the interests of loans downward, and made full use of bonds and trusts to achieve direct low-cost financing, reduce financial costs and improve economic returns.



Automatic sampling equipment

Strengthening Financial Support

In accordance with the general ideas of "one prevention, two controls, three overall plannings and four reinforcements," we took various measures like exploring the sources of funds, strengthening budget control, making multi-lateral communications and coordination, granting emergency loans, ruling over credit resources of the financial company, and others, to constantly intensify fund management, and strictly control fund risk.

We strengthened our strategic cooperation with state-owned commercial banks to obtain sufficient bank financing. We enlarged the scale of bond financing, and developed the special financing of postal savings, insurance investment plans, trust loans, finance leases and other non-credit bond financing channels. We also made innovations in financing modes, explored low-cost financing products, and saved interest on about 342 million Yuan throughout the year. Furthermore, we strengthened liquidity management, intensified our efforts to take back accounts receivable, improved inventory turnover such as coal, and focused on reducing the occupation of working capital, so as to improve the service efficiency of funds and benefits.

We strengthened capital operations, actively cultivated the main body of self-development in the market, and delivered financing functions in the capital market. In 2011, Huaneng Renewables Corporation was listed in Hong Kong, and

raised funds of 5.515 billion Yuan. Additionally, we expanded our cooperation with external shareholders, expanded our sources of funds, and completed the increase of capital and equity structure adjustment to the Lancang River Company, the Mengxi Power Plant, the Duanzhai Coal-fired Power Plant, the Guicheng Trust Company, the Yongcheng Insurance Company and Huaneng Investco Ross, raising total funds of 3.939 billion Yuan.



Yongcheng Insurance Company

Promoting Information System Construction

We work to plan the construction of information system projects as a whole, and steadily press ahead with it. On the basis of experiments in seven power plants, such as the Dalian Power Plant and the Shidongkou Power Plant II, we promoted an integrated financial management system of online assets and in the Huaneng Stock Company, Huaneng Jilin Company and Lancang Rivery Company. We also deeply promoted the optimization and upgrading of information systems for human resource management, some functions of which have made up for the gap in SAP human resources system in China. In January 2011, we put infrastructure construction supplier modules of e-commerce systems into trial operation, which covered 540 suppliers of material and equipment.

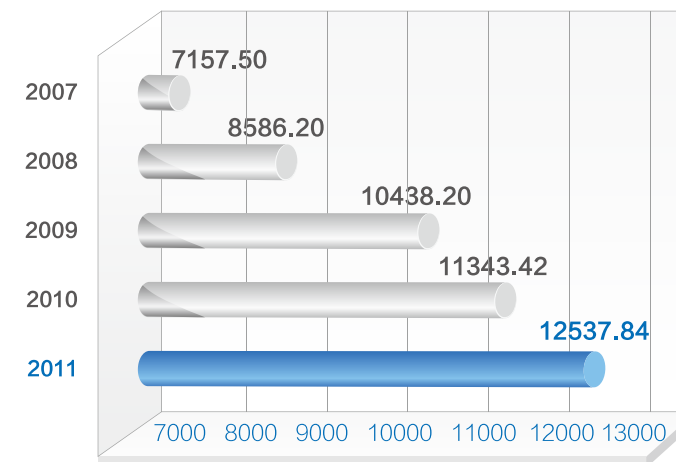
In 2011, we fully carried out information system training. Through expert's explanations, introduction of the project team, seminars, lectures, video conferences, compilations of video teaching materials and other ways, we held several information system trainings with 8,422 attendances, covering the human resources system, integrated financial assets system, information safety, relevant software and video conference systems, assets management platforms, and others, which comprehensively improved employees' operational skills in information systems and laid a solid foundation for Huaneng to realize modern management.



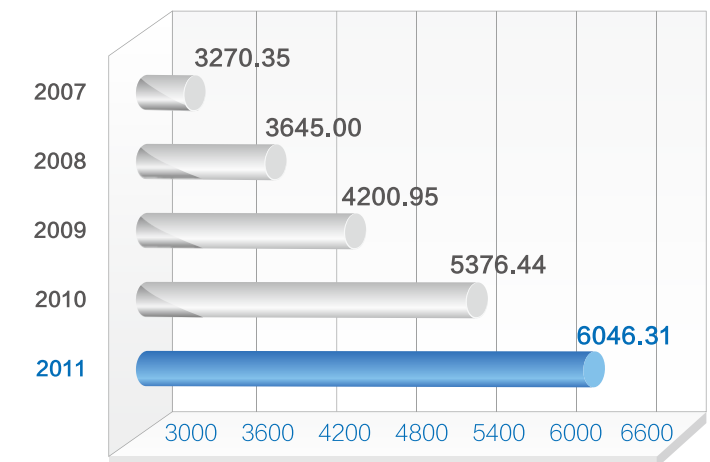
Modern power plant control centre

Healthy Development Performance

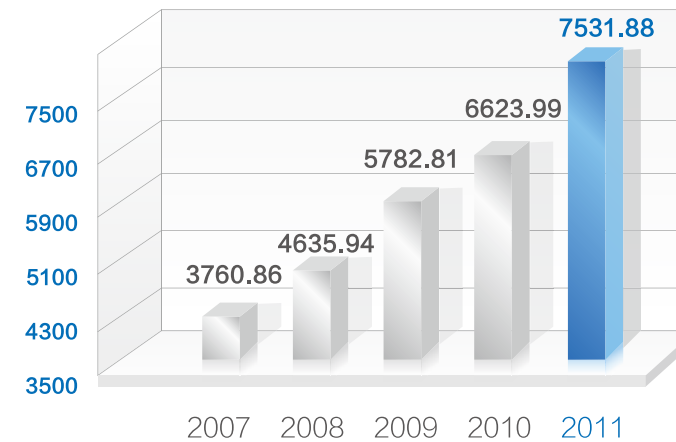
Installed capacity(10MW)



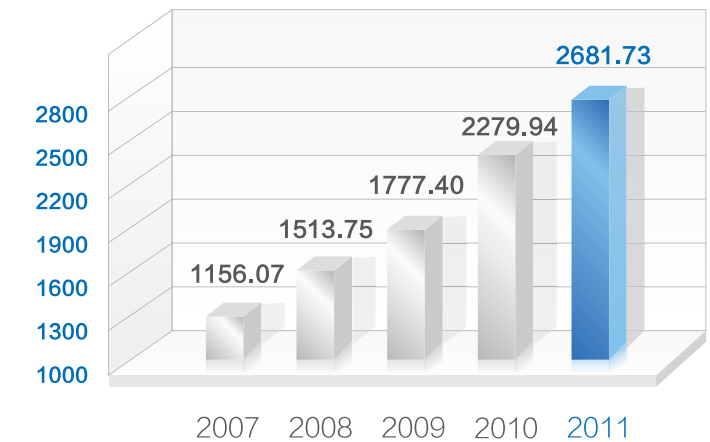
Power output(100 million kWh)



Total assets (RMB 100 million Yuan)



Total revenue (RMB 100 million Yuan)



Tax (RMB 100 million Yuan)



Profit (RMB 100 million Yuan)



Case Study

Huaneng Haimen Power Plant

Striving to build a first-class enterprise with the strongest value creation ability



Huaneng Haimen Power Plant, located in Shantou city of Guangdong province, is one of the key power projects in Guangdong province and a national key project. Its two generating units (2 x 1,036 MW) in the phase-I project were put into production on September 27th, 2009. It is the first million-KW grade high-efficiency and environmentally-friendly power plant in the power supply area of the China Southern Power Grid Company. In recent years, the Haimen Power Plant has committed to being an energy base integrated with power, coal, railway, port and transportation. This base may play an important role in meeting the demand for power in Guangdong province and the need of fast growth in load, promoting optimal and reasonable power distribution, and further giving strong support for the power supply in the east of Guangdong.

In 2011, the Haimen Power Plant took "building a first-class enterprise with the strongest abilities in value creation" as its annual working objective, and focused

on the improvement of development quality and efficiency, making full use of its advantages, deeply tapping its potential, strengthening management and improving performance. It made great efforts to promote activities to improve indicators, strengthened fuel management, and intensified marketing management, so as to constantly improve its profitability.

Promoting activities to improve indicators. The Haimen Power Plant has worked to develop first-class indicators and implementation measures to improve energy indicators, established evaluation mechanisms in benchmarking management, analyzed its shortcomings, and taken countermeasures to intensify benchmarking effects. While optimizing operations and management, improving technical measures, strengthening position analysis, carrying out competitions between different shifts, and strengthening the operational management of generating unit parameters. The Haimen Power Plant has promoted in-depth and detailed work in energy conservation. Taking the opportunity to overhaul generating units, the Haimen Power Plant made more than 30 technical transformations, including combining suction fans and booster fans, retrofitting new-type steam seals, modifying frequency conversion of auxiliaries, and optimizing coal powder pipes and flow paths, which have greatly decreased coal consumption and power plant electricity consumption rates, and achieved obvious effects in energy conservation. In 2011, the Haimen Power Plant obtained the best achievements in China, with power plant electricity consumption rates of 3.85%, down by 0.51% over the previous year, and coal consumption of 286.10 g/kWh, down by 6.87 g/kWh in comparison with 2010.

Strengthening fuel management. The Haimen Power Plant took the creation of

benchmarking power plant fuel management as its focus, and reinforced detailed management in fuel costs, strengthening its market analysis and forecasting, making timely communication with departments in charge, striving to improve the supply structure of incoming coal, doing well in inventory adjustments, and increasing blending combustion of lignite coal. The Haimen Power Plant also strengthened management around coal sampling, preparation and testing, and supervision over the performance of fuel. It straightened out issues around transportation and unloading of coal, reasonably increased the capacity of the coal stockyard from 220,000 tons to 300,000 tons and accelerated the construction of the No.2 and 3 unloading stands, which may increase the coal loading capacity from 23,000 tons to 30,000 tons per day. Through unremitting efforts, the Haimeng Power Plant realized the opening of the Haimen wharf, optimized inspection formalities at customs, and reduced demurrage costs and fuel costs.

Intensify marketing management. According to the principle of "Earlier, more effective and focused", the marketing personnel of the Haimen Power Plant stationed in Guangzhou worked to understand power market trends and communicated with dispatchers. The Haimen Power Plant made timely adjustments in its maintenance plan, and increased the annual planned power output. Additionally, the Power Plant seized the opportunity of the power shortage in Guangdong, formulated incentive measures to increase electricity output, strengthened communication with shift leaders and dispatchers, and improved the mechanism of "daily analysis, benchmarking every ten days, and monthly summaries." The Haimen Power Plant created a historical record in daily, monthly and yearly power generation. Its utilization hours of generating units were 881 hours more than that of tracking units in Guangdong province. Additionally, the Power Plant implemented the first tariff of power output generated by units with denitration devices in Guangdong. In accordance with the national policies on electricity tariff adjustment, it ensured the implementation of on-grid tariffs so as to realize increases in income and revenue.



In 2011, the Haimen Power Plant took a series of measures, including tapping potentials to increase efficiency, and reducing costs, among other measures, from which the plant obtained actively benefits. It successfully created production and operational indicators. Its annual power output of the No.1. and 2 generating units reached 13.471 billion kWh, and its unit capacity contribution was at the top of the list in Huaneng. It became a famous "industrial business card" in Huaneng and in Guangdong province.





Global Perspective and International Development

Concept of International Development

- International Development is an important pathway to sustainable development. International development must be based on a global perspective, implement an internationalized business strategy, strengthen exchanges and cooperation in the field of offshore energy resources, and gradually expand international market share. We must strengthen offshore asset management, effectively control risks; scientifically allocate global capital, talent and market resources, and improve our international operations management skills.

Objectives of International Development

- To ensure the safety of offshore asset management;
- To improve the profitability of offshore asset and achieve reasonable investment returns;
- To make good use of two types of markets and two types of resources so as to develop the cause of Huaneng.

Measures of International Development

Developing and Merging Power Projects Abroad

The Company paid equal attention to development and acquisition, and actively implemented the “go global” strategy. In accordance with the principles of giving priority to efficiency, we actively developed and utilized overseas low carbon and clean energy , as well as coal for power generation, steadily increasing our offshore installed capacity and coal capacity. By the end of 2011, we had extended our overseas business to 7 countries in four continents with an installed capacity of nearly 6,000 MW.

Acquiring a stake in the Australia Power Company (OzGen) in 2003

In December 2003, Huaneng acquired a 50% stake in OzGen with USD \$ 227 million, which was the first “go global” project, and opened the way for Chinese power generation enterprises to operate and manage power plants in a developed country.

OzGen has two power plants, the Millmerran and Callide C power plants, with total installed capacity of 1,800 MW and equity capacity of about 960 MW. Since the acquisition, Huaneng has taken technological advantages, sent management and technical staff to help enhance the operational level, and achieved better results in production and operations. In 2011, the company achieved a generating output of 7.8 billion kWh, and unit utilization of 6,518 hours.



Australia Callide C Power Plant



Australia Millmerran Power Plant

Events

- On January 18th the Company signed a cooperation agreement on the technology of reducing CO₂ emissions and improving the efficiency of coal-fired power plants with the American Electric Power Company.
- On April 11th the Company, in association with the Guangdong Yudean Group Co., Ltd. , acquired 50% of InterGen’s stake held by the India GMR group, with USD \$1.232 billion.
- On April 18th the Company’s overseas recruitment delegation went to America to carry out high-level overseas talent recruitment activities.
- On May 16th Neil Smith, InterGen’s President and CEO, and other senior management paid a visit to the headquarters.
- On May 23rd Anne Bligh, governor of Queensland, Australia, sent a letter to thank the Huaneng Group for donating AUD 100,000 to flooded areas.

Developing and Constructing the Shweli River Hydropower Station Stage I in Myanmar with a BOT model in 2006

In December 2006, relying on regional advantages of adjacent to the Lancang River and the Mekong River and its technological, operational and management advantages in hydropower stations, the Huaneng Lancang River Hydropower Company initiated and established the Yunnan Joint Power Development Co., Ltd., which signed the **"Agreement on a Joint Venture to Develop a Hydropower Project on the Shweli River for Stage I"** with DHPI of the First Power Department of Myanmar to build and operate the Shweli River Hydropower Station Stage I with a BOT model. This project is the first foreign hydropower project with a BOT model in China. As the power station adopted the special power supply model of "one power station for two power grids", it opened the way to transmit power output generated abroad back to China, along with creating a new international cooperation model.



Shweli River Hydropower Station Stage I

The Shweli River Hydropower Station Stage I has total investments of USD \$ 475 million, with installed capacity of 6x100 MW. From damming the river to connecting to the power grid, Huaneng completed the project in just 28 months, which has fostered a good company image in Myanmar.

By the end of 2011, the Shweli River Hydropower Station Stage I had generated 9.726 billion kWh, of which 5.287 billion kWh was transmitted back to China, and 4.359 billion kWh to Myanmar. This project has strongly supported the economy both in China and in Myanmar, and made positive contributions to cooperation in the Greater Mekong Sub-region.

Acquiring a 100% stake of the Singapore Tuas Power Company in 2008

In March 2008, Huaneng Power International successfully acquired a 100% stake of the Singapore Tuas Power Ltd. with S\$4.235 billion from Singapore Temasek Shareholding Company through international public bidding. This is Huaneng's first wholly-funded power plant abroad.

Tuas Power Ltd. has a total installed capacity of 2,670 MW. Since the acquisition, Huaneng has taken serving the local power market as its highest purpose, and pursuing long-term win-win development as its objective. Therefore, Huaneng made great progress in the development and construction of new projects, successively launching the Tembusu project and CCP5, which has helped Huaneng achieve greater market share and build up its strengths.

Acquiring a 50% stake of InterGen in 2010

At the end of November 2010, Huaneng, in association with the Guangdong Yudean Group, acquired a 50% stake of InterGen held by India GMR Group with USD \$1.232 billion, and the deal was completed on April 11th 2011.

InterGen has 12 power plants, among which there are 9 gas-fired power plants, 3 coal-fired power plants, and 1 pressure station and pipeline work in Mexico. These 12 power plants are distributed in 5 countries including the Netherlands, the United Kingdom, Mexico, Australia and the Philippines, with total installed capacity of 8,146 MW and equity capacity of 6,312 MW.



Mexico Chihuahua Power Plant

Strengthening Internationalized Operations and Management

Developing Effective Operational Measures

The Company formulated **Interim Regulations on Management of Overseas Property Rights, Interim Measures on Management of Shareholding Enterprises of China Huaneng Hong Kong Company**, and other rules and regulations, so as to implement absolute control in the major decision-making of overseas subsidiary companies. Huaneng Power International has specifically set up a Tuas management office, reorganized Tuas' board of directors and enjoys veto rights. Through setting up an Australia Representative Office, sending general technical managers accredited to the Australian Power Company, and other ways, Huaneng has gradually formed its own supervision method combining equity management with operational management. Huaneng selected and sent Huaneng's directors or members to InterGen's Regulatory Commissions and other professional committees, so as to regularly submit information on production and operations, and strengthen daily supervision.

Improving Risk Control

The Company formulated and improved **Regulations on Comprehensive Management of Risks**, and developed methods on risk evaluation of overseas investment and operations. We collected, mastered, and analyzed the industrial policies, laws and regulations, and market information in each country where we have operations, made more analysis and research of risks, and developed emergency plans to prevent the occurrence of various risks. Since going abroad from the first time in 2003, we have made our foreign business operations stronger and have obtained good investment returns.



Britain Rocksavage Power Plant

Cultivating International Business Talent

The Company have emphasized building an international business talent team, took the advantage of overseas projects to speed up the cultivation of international business talents who are proficient in foreign legal systems, financial taxation, corporate governance, international business knowledge and so on. In the meantime, we have actively attracted talent from around the world to Huaneng, and strived to build an talented team with political reliability, sound working style, and a full range of professions adapted to working and living abroad.

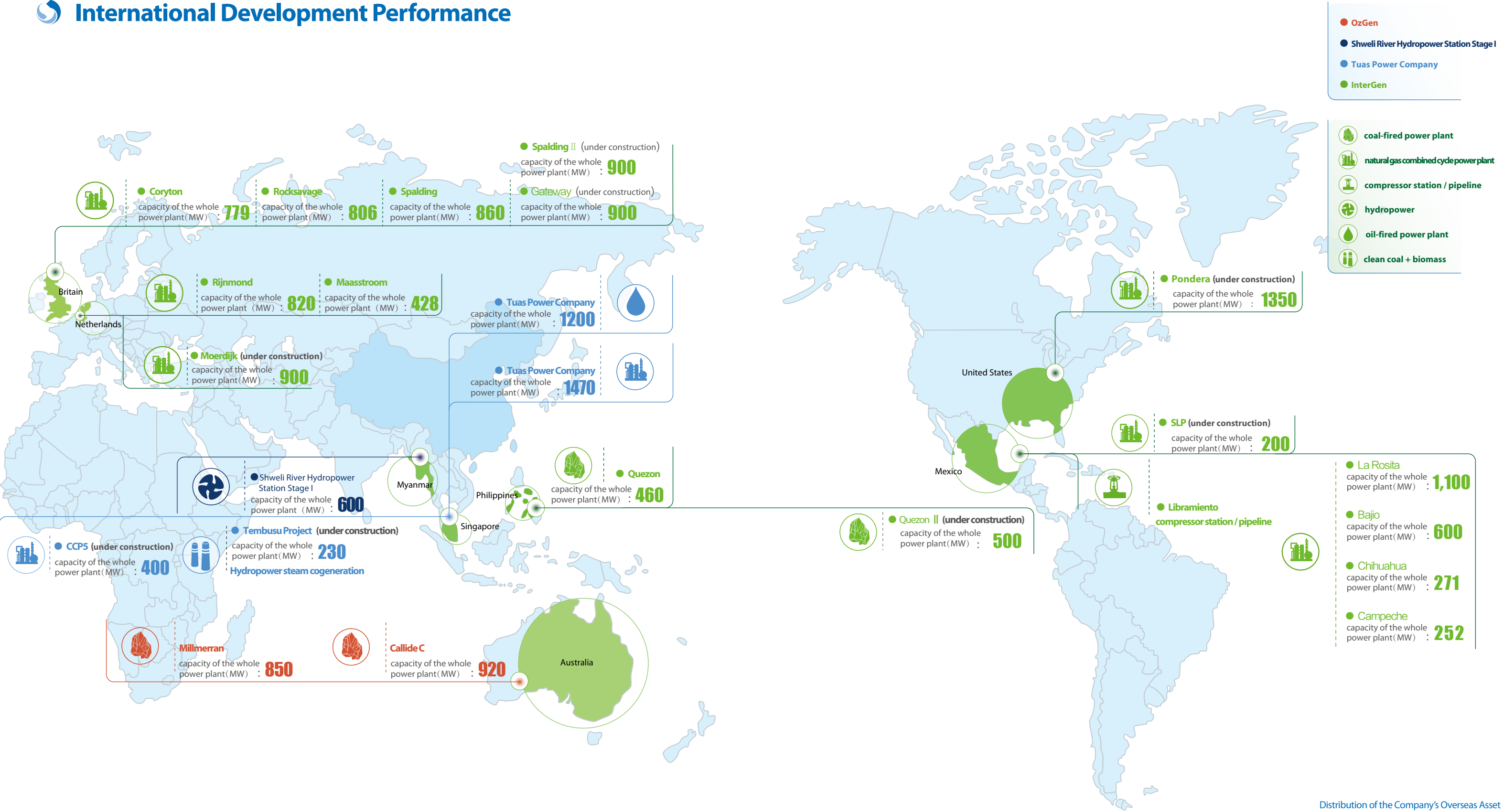
Promoting International Exchange and Cooperation

The Company have continued to attach importance to bringing our own advantages into play, thus actively strengthening exchanges and cooperation with companies in the United States, Europe, Australia and other places, and promoted the mutual research and development of projects, talent training and exchanges on management so as to improve the Company's internationalization level. In January 2011, we signed a technological cooperation agreement with the American Electric Power Company on reducing CO₂ emissions and improving the efficiency of coal-fired power plants. Both parties will adopt our self-developed CO₂ capturing technology, cooperate on research about CO₂ emissions reductions in coal-fired power plants, and promote the construction of demonstration projects in due time.



The Philippines Quezon Power Plant

International Development Performance



Distribution of the Company's Overseas Asset

Case Study

Tuas Power Ltd.

The Successful Model of Huaneng Going Global

Tuas Power Ltd. was established in March 1995, and its subsidiary power plant is located in the south of Singapore with a total installed capacity of 2,670 MW, accounting for about 26% of total installed capacity in the Singaporean power market. The power plant is one of the three major power plants in Singapore and plays an important role in ensuring the power supply in Singapore.

Successfully acquiring a stake. As early as in 2004, Huaneng made a detailed investigation on the production and management of the Tuas Power Company. In early 2008, Temasek officially started the program to sell Tuas Power Ltd., and Huaneng actively participated in the bid. In order to win trust and support from the management, labors and the trade union of Tuas Power Ltd., Huaneng communicated meticulously with them. Huaneng promised to retain the original management and staff, and keep its existing development direction after acquisition. On the basis of long-term understanding and thorough communication, Huaneng acquired a 100% stake of Tuas Power Ltd. with S\$4.235 billion in March 2008.

Promoting integrated management. After acquiring its stake, Huaneng

determined the management direction of Tuas Power Ltd. Taking into consideration its expertise in the management of overseas assets, in combination with the social, economic and legal environment in Singapore, and the actual situation of Tuas Power Ltd., Huaneng took account of risks, increases of efficiency, and promotion of development as its mission. Huaneng oriented the management of Tuas Power Ltd. as part of strategic operational management, laid emphasis on the structure of corporate governance, strengthened management in budget incentives and major decisions, and actively promoted integrated management. On the basis of its original management system, Huaneng reorganized the Board of Directors and added the directors of Huaneng, and set up a Risk Management Committee to strengthen risk management. Huaneng also established mechanisms to regularly report and communicate information about operations and management, improved internal control systems in accordance with the Sarbanes-Oxley Act, and introduced internal controls and external audit mechanisms; we actively publicized and implemented Huaneng's "three color concept" to strengthen the

development of corporate culture and promote cultural cohesion. Huaneng gave strong support in the production and management of the power plant, management of project construction, bank loans and financing, and other aspects, based on which Tuas Power Ltd. focused on marketing and production, increased income and reduced expenditures, and constantly improved its development quality and efficiency.

Extending the development field. While keeping safety and production orderly, keeping management controllable and highly-efficient, and keeping performance levels increasing steadily, and based on the energy development strategy in Singapore, Tuas Power Ltd. has successively launched projects of Tembusu and CCP5. In November 2009, infrastructure construction of the Tembusu large-scale integrated hydropower and steam project of Tuas Power Ltd. was started in the Tembusu Industrial Park of Jurong Island. It creatively introduced mixing fuel of "clean coal + biomass" into power generation, which not only meets strict environmental requirements, but also provides relatively low-cost hydropower products, promoting local economic development. Presently, phase I of the Tembusu project and its A project in phase II are under

construction according to plan, both of which will be put into operation in early 2013 and 2014 respectively. In 2010, seizing the opportunity, and complying with the energy strategic plan of the government, Tuas Power Ltd. developed a plan for retrofitting generating units to use natural gas instead of oil, that is, building CCP5 (400MW) generators in place of two oil-fired generating units. The project was started in early 2011, and is expected to be put into operation in the fourth quarter of 2013. With the start of both projects, Tuas Power Ltd. has successfully transformed its development mode from single power generation to providing power supply and utility services, thus further enhancing its competitiveness.

Since the acquisition, Tuas Power Ltd. had, by the end of 2011, achieved power output of 40.7 billion kWh. In comparison with the number of labors before the acquisition, there was an increase of 95 persons in the company, therefore, Huaneng honored its commitment of "no downsizing" and provided more jobs for local people. The successful acquisition and excellent operations of Tuas Power Ltd. has not only fostered a good image of Chinese enterprises in Singapore, but also accumulated experience for Huaneng in operating in the competitive power market of a developed economy, as well as becoming a successful model in Huaneng's internationalization strategy.





Mutual Benefits and Harmonious Development

Concept of Harmonious Development

- 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.

Objectives of Harmonious Development

- Be responsible to our employees to achieve common growth;
- Be responsible to our clients and partners to achieve mutual benefit and win-win outcomes;
- Be responsible to the community in order to contribute to society and promote a harmonious society.

Measures of Harmonious Development

Building Harmonious Labor Relations

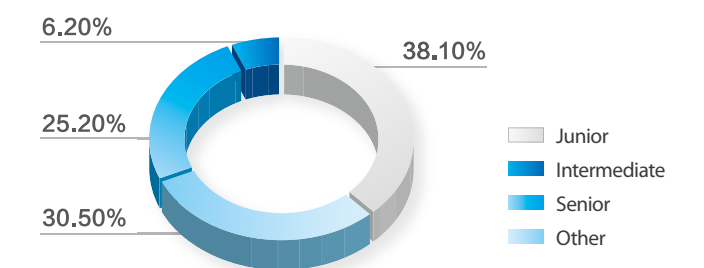
We believe that our employees are central to our operational success and company development. We rely on them and do our best to stimulate and encourage their enthusiasm, innovation and creativity at work, and encourage staff to achieve development in common with the enterprise. We recruited 4,850 new people, 2,984 of whom were this year's university graduates. By the end of 2011, we employed 133,270 people, 32,636 of whom are women (24.5%).

Protecting the Rights and Interests of Employees

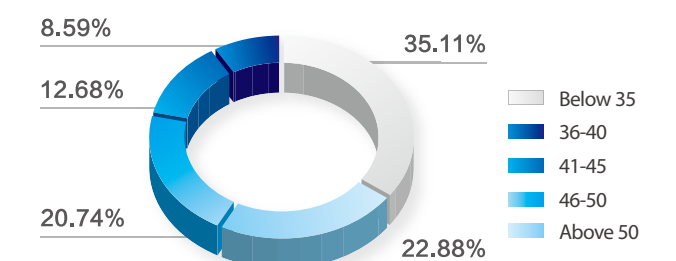
We strictly abided by **Labor Laws of the People's Republic of China**, and other applicable laws and regulations, enforced all staff to sign labor contracts. According to the laws, we signed labor contracts with employees, and achieved 100% of signing and honoring labor and collective contracts, and paying social insurance. We persisted in equal employment, eliminated the discrimination of race, sex, diseases and others, put an end to forced labor, and fully implemented annual leave with pay, 7.2 days per person. In the accordance with relevant rules and regulations, we actively recruited the disabled, and army men transferred to civilian work, signed Special Collective Contract on Preventing the Rights and Interests of Female Workers with women staff, and gave equal remuneration for equal work for men and women workers.

We supported labor union organizations at all levels to strengthen their self-improvement and develop their work according to law. The enrollment ratio of employees in labor unions at all subsidiary enterprises was 100%. We continuously improved the Workers' Congress System and encouraged openness and employee participation in our management of operational affairs. We smoothed communication channels for employees, encouraged staff to offer advice and suggestions, and safeguarded employees' rights to know, to participate, to supervise and to express. All grassroots enterprises were sticking to the regulation that leaders communicate with employees regularly at scheduled time.

Level of Professional Technicians



Employee Age Distribution



Events

- On April 22nd Huaneng's Aid Project in Ali of Tibet was awarded the title of "Moving Electric Power Team".
- On June 17th the Company was awarded the title of "Advanced Unit in Human Resources Work among China Top 500 Energy Groups".
- On August 14th the Company held a joint conference with the People's Government of the Tibet Autonomous Region to jointly study and promote the construction and development of hydropower in Tibet.
- On November 12th the Company was granted the award of "Top 10 Model Enterprise in 30-year Practice of Corporate Culture" by the Chinese Enterprise Culture Research Institute.
- On November 22nd the Company's 2010 Sustainability Report was selected as a model report by the China Network Center of the United Nations Global Compact.
- On December 2nd the Company's sustainability report made the ranks of the List of GoldenBee Outstanding CSR Reports for the third consecutive year and was awarded "GoldenBee Outstanding CSR Report - Evergreen Award 2011".

◆ Promoting Industrial Chain Building

We adhered to operational standards, abided by contracts, made payments and settlements in a timely manner, and achieved a 100% contract fulfillment rate. We also strictly examined qualifications in materials procurement and project construction, conformed to bidding procedures, advocated fair competition, and resolutely resisted all types of commercial bribery. Additionally, we strengthened our communications and cooperation with coal suppliers, equipment manufacturers, and financial institutions to expand cooperation fields, jointly cope with market risks and achieve multilateral benefits. In 2011, the company signed cooperation agreements with the China National Petroleum Corporation, Aluminum Corporation of China, China National Coal Group Co., Ltd, and other units to strengthen cooperation in shale gas exploration, new energy, coal chemistry and other industries.

◎ Building Harmonious Community Relations

◆ Guarantee the Power Supply

We actively fought against a severe drought, low temperatures of the freezing, typhoons and other extreme weather and natural disasters, effectively did a good job in preventing flooding, and meeting peak demands for electricity in summer and during the National Day holiday. We employed all available means to guarantee a safe and steady supply of thermal coal and went all out to supply power and heat. During each challenge, we suffered no shortage of coal, nor did we shut down any power plants. We ensured power and heat supplies to the people, and remained a reliable energy supplier to local power grids.



Fighting blizzards to ensure power supply

◆ Participating in Public Welfare



Huaneng Youth Education Aid Action

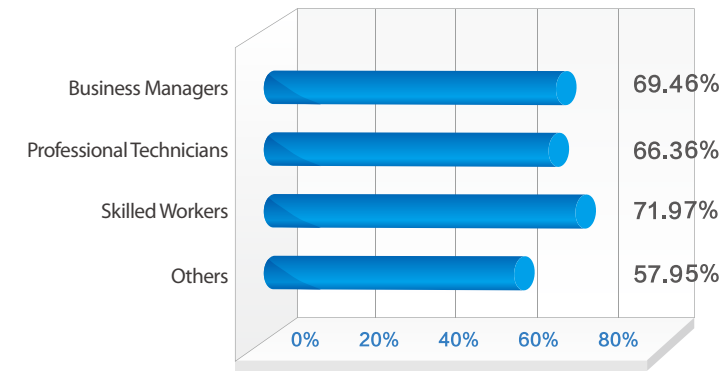
The Company formulated Regulations on Exterior Donation to standardize the donating behaviors, actively involved great efforts in disaster relief, showed care to vulnerable groups, made donations, and worked on poverty alleviation and aid projects in Xinjiang, Tibet and Qinghai. We also encouraged young volunteers to participate in community development, public environmental welfare and student aid projects to fully demonstrate the good corporate image in giving back to society and helping to build a harmonious society. In 2011, the Company actively carried out the volunteer action of "Caring about the Children of Peasant Workers," and all subsidiary companies did what was within their means to provide volunteer services to the children of peasant workers by means of "feeling cities" and loving donations, accompanied by family, school counselors, self-care educators and others. 6,910 volunteers participated in the actions, providing services to 3,905 children, and pairing off with 1,738 persons.

◆ Promoting Community Development

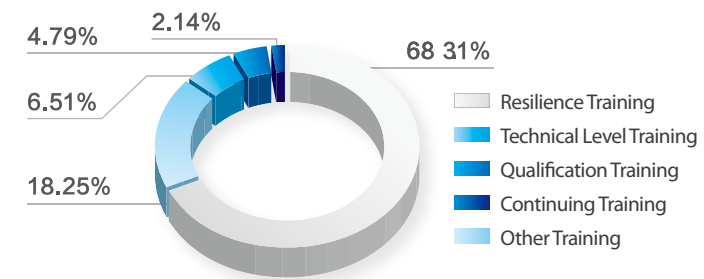
We were committed to supporting the economic development, infrastructure, and environmental protection of the communities where power plants operate, while also creating employment opportunities. We participated in the construction of new rural and pastoral communities, and made greater efforts in poverty alleviation with technical and cultural guidance. In addition, we continued to promote activities like the "100-1000-10000 Campaign," the "Enriching and Benefiting Farmers" project, "Student Aid Project," "Green Protection Project," and others, as part of our overall efforts to "Construct power stations, stimulate the local economy, protect the local environment, and promote complete harmony."

Harmonious Development Performance

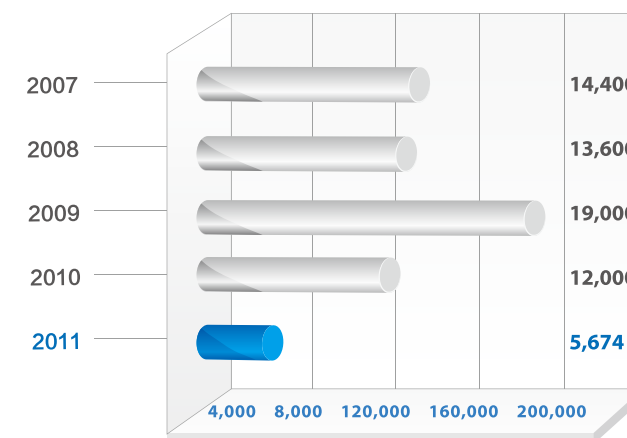
Employee Training in 2011



Training Ratios in 2011



Total Donations (RMB 10 thousand Yuan)



Honors	No
National Labor Certificate	1
National Labor Medal	7
National Worker Pioneer	10
National Woman Pacesetter	6
National Woman Pacesetter Post	1
National Woman Pacesetter Post	1
National Award for Outstanding Ideological and Political Achievements in the Power Industry	14
National Award for Innovative Achievements of Corporate Management in the Power Industry	21
2010 Award for a Moving Electric Power Team	1
The fourteenth Beijing International High-tech Expo "Best of Show Award"	1
National Civilized Unit	12
2011 Valuable Management Model	1
GoldenBee Outstanding CSR Report • Leading Enterprise	1
GoldenBee Outstanding CSR Report • Evergreen Award 2011	1
Advanced Unit in Talent Work among China's Top 500 Energy Groups	1
Top 10 Model Enterprise in 30-year Practice of Corporate Culture	1
Model Practice Report	1
Award for National Excellent Organization of Fitness Campaign	1
Outstanding Unit in the All People's Stay Fitness Campaign	1

Case Study

Lancang River Hydropower Co., Ltd.

Creating win-win outcomes and harmony between the company and local places

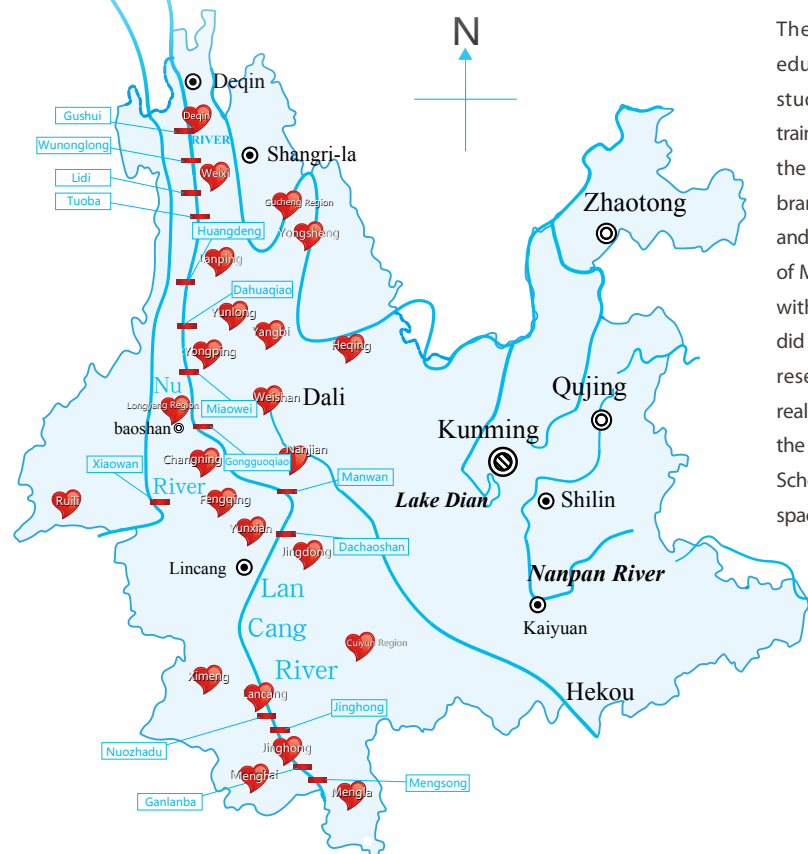
The Lancang River Hydropower Co., Ltd. is an important backbone enterprise in Yunnan province in the project of transmitting power from the western areas to east China and both from Yunnan to other provinces. In 2011, the company had operational installed capacity of 8,850 MW, achieved power output of 33.6 billion kWh, exceeded 94.2 billion Yuan in total assets, and had a processed capacity of generating units under construction and in preparation over 17,000 MW, which forms good development momentum featuring “operating, constructing and

reserving cascade hydropower stations at the same time.”

The company consistently persisted in the integration of economic, social and environmental responsibilities, and adhered to the responsibility concept of “multi-cooperation, mutual benefit, win-win outcomes, and harmonious development,” while actively carrying out the “100-1000-10000 project,” and taking the construction of hydropower stations as the focus to radiate through the surrounding area and serve the construction of the socialist new rural community.

The Lancang Hydropower Company concerned itself with education around the reservoir area, building schools, aiding students in pairs, and financing rural teachers in professional trainings. Within just 90 days, the Manwan Power Plant had replaced the broken down teaching building of Wuli Hope Primary School with a brand new teaching building, and greatly improved the learning and living conditions for teachers and students. Yang Rulong, Head of Manwan Town, said with deep feeling, “This is Manwan’s school with the best teaching facilities we have ever known. Huaneng did practical and good things for the masses around the Manwan reservoir areas, and helped thousands of people in the town realize what they always dreamed of.” At present, on the bank of the Lancang River mushroom a number of Huaneng Hope Primary Schools, where children are happy with learning in the bright and spacious classrooms.

The Lancang River Company took the solution to the problem of drinking water as an important task in support of the construction of a new rural community. On the basis of a full investigation, the company invited professionals to look for water sources, monitor water quality, and build drinking water projects. Over the past five years, the Company has solved the problems of drinking water for 48,157 persons and 20,750 large animals. At the ceremony



Distribution Map of Yunnan Action Plan in the 100-1000-10000 Projects of Lancang River



celebrating the completion of the drinking water projects in Xiteng Village of Yun County, the villagers’ representatives said: “We are living in Tengxi village and have been short of water for decades; nowadays we can finally drink safe and clean water. This is a great happy event. We are grateful to Huaneng for bringing clean water for us.” Now on the both sides of Lancang River, running water is flowing into thousands of households, which means that twisting the tap brings clean water in the house and smiles on the faces of the villagers.

The Lancang River Company persisted in poverty alleviation by culture, science and technology, so it accelerated the construction of public cultural facilities like cultural stations and cultural recreation rooms in the towns, carried out labor transfer education training, and strived to develop a new type of farmer with culture, technology and business minds. In the meantime, it guided the masses to shift the focus of development to the strong industries that accord with the actual local situation, so as to help farmers increase their income.

In addition, the company also improved the rural health service system, building rural clinics, supporting rural doctors in training, and subsidizing farmers to enjoy state-funded new-type rural cooperative medical care, so as to improve the rural health service.

Since carrying out the 100-1000-10000 project, the Lancang River Company has invested a total of more than 70 million Yuan, building 60 Hope Primary Schools, 37 clinics, 30 cultural rooms, and 16 reading rooms, financing 118 villages to improve their appearances, supporting 1,410 rural teachers to participate in professional training, and helping 1,150 junior and senior middle school students to go to vocational technology schools, pairing with over 2,500 needy students to help them complete their education, conducting 9,515 trainings for transferring the rural labor force, and subsidizing 170,022 farmers to enjoy state-funded new-type rural cooperative medical care. All of these effectively improved local economic and social development, and built the bank of the Lancang River into a harmonious social and economic development belt.



Prospect in 2012

Objectives

Measures

Safe development

- To avoid serious or above accidents;
- To avoid incidents that may negatively impact the image of our company.

- To avoid breach of safety production regulations so as to get better basis of safety production;
- To further strengthen safety management in coal mining enterprises and fully carry out the construction of safe production and management systems in power plants;
- To standardize safe production, strengthen standard construction of safety management, equipment and facilities, production technology, and the workplace.

Optimal development

- To increase coal production capacity by 15.2 million tons/year;
- To increase the installed capacity of clean energy by 4,457.3 MW.

- To promote the readjustment of the power structure, and give priority to clean energy projects with good returns;
- To strengthen industrial coordination, focus on consolidating the basic position of the coal industry, making various better and stronger financing platforms, optimizing the layout of ports, wharfs, coal transport bases, and stepping up scientific industrialization.

Green development

- To realize 317.21 g/kWh;
- To build 10 excellent energy-saving, environmentally-friendly coal-fired power plants of coal consumption for power supply;
- To achieve the annual goals set out in the *Special Plan on Energy Conservation and Environmental Protection (2011-2015)* and *Overall Planning on Reduction and Control of SO₂ and NO_x during the 12th Five-Year Plan*.

- To steadily promote the creation of an excellent energy-saving and environmentally-friendly enterprise;
- To further strengthen operational adjustment and energy-saving technological modifications, and intensify our efforts in tackling the problems of energy-saving technology;
- To make overall plans to press ahead with retrofitting desulphurization and denitration of generating units in order to service them in an orderly way;
- To strengthen carbon assets management, track international mechanisms around carbon emissions reduction, and deeply research the CDM project development model.

Healthy development

- To achieve 660 billion kWh of power generation;
- To achieve coal production of 66.7 million tons; To achieve sales revenue of 304 billion Yuan;
- To get approval for power projects of 10 GW, and coal projects of 11 million tons per year.

- To strengthen power marketing, and obtain the maximum capacity benefit;
- To focus on closed-loop fuel management, actively explore the sources of coal, and enhance the capabilities of ensuring coal supplies, controlling the price of coal, and improving coal quality;
- To make greater efforts in financing innovation, perfecting the emergency fund security system, and enhancing our capability in preventing capital risks;
- To strive to enhance our capabilities in operating, managing and controlling enterprises, and fully implement guidance on strengthening EVA management and cost management.

International development

- To further expand and consolidate our overseas assets management platform;
- To improve overseas assets profitability.

- To improve the operations and management of overseas assets;
- To intensify our efforts in the development of overseas hydropower;
- To do well in integration and reorganization of overseas assets.

Harmonious development

- To achieve common growth with our employees;
- To achieve mutual benefit and win-win outcomes with our clients and partners;
- To achieve harmonious progress with our society.

- To improve the quality of our staff, striving to build staff teams with "four first-class" elements, and deeply promoting transparent factory affairs and democratic management;
- To strengthen cooperation with regional and various partners, actively extend cooperation in the field and improve cooperation quality;
- To steadily do well in poverty alleviation and aid in Xinjiang, Tibet and Qinghai, and actively participate in public welfare.

Indicator Index 1: GRI Index(G3.1)

Note: The level of disclosure (● Covered in the Report ● Partially Covered in the Report ○ Not Covered in the Report ⊗ Not Available)

GRI Indicators	Disclosure in the report	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	P1-2	●
1.2 Description of key impacts, risks and opportunities	P13-14	●
2 Organization Profile		
2.1 Organization name	P10	●
2.2 Major brands, products and/or services	P10	●
2.3 Operational structure of the organization (including main departments, the operating company, subsidiaries and joint ventures)	P10-11	●
2.4 Location of Headquarters back flap	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	P10/P59-60	●
2.6 Nature of ownership and legal form	P10	●
2.7 Markets served by the organization (including regional markets, trades served, types of beneficiaries)	P10	●
2.8 Scales of the organization inside front cover	P10	●
2.9 Significant changes in size, structure or ownership of the organization during the reporting period	P10	●
2.10 Awards received in the reporting period	P24/P49/P68	●
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 scope 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 reas , base year/year period changes, business nature, design procedure)	Inside front cover	●
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	P73-79	●
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)	P80	●
4 Governance, Commitments and Engagement		
4.1 Governance structure of the organization.	P10	●
4.2 Indicate whether Chairman of the Board is also an executive officer		○
4.3 For organizations that have a unitary board structure, state the number and gender 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	P10	●

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)		●
4.6	Procedures for avoiding conflicts of interests within the highest governance body	P10	●
4.7	Process for determining the composition, qualifications, and expertise of the members of the highest governance body and its committees, including any consideration of gender and other indicators of diversity.	P16	●
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 /P20/P30/P38/P46/ P56/P64	●
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	P12/P15-16	●
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance	P10/P46	●
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization	P10/P15	●
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	Inside front cover	●
4.13	Memberships in associations(such as industry associations) and/or national/international advocacy organizations	P18	●
4.14	List of stakeholder groups engaged by the organization.	P4	●
4.15	Basis for identification and selection of stakeholders with whom to engage.	P4	●
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	P4	●
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	P4	●
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/P52/P68	●
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	P40	●
EC3	Coverage of the organization's defined benefit plan obligations	P64-66	●
EC4	Significant financial assistance received from government		○
EC5	Range of ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	P64-66	●
EC6	Policy, practices and proportion of spending on locally-based suppliers at significant locations of operation	P22	●
EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation	P66	●
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind or pro bono engagement	P67/P69-70	●
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts	P66-68	●
6 Environment			
EN1	Materials used by weight or volume	P42	●
EN2	Percentage of materials used that are recycled input materials		○
EN3	Direct energy consumption by primary energy source	P42	●
EN4	Indirect energy consumption by primary energy source	P42	●
EN5	Energy saved due to conservation and efficiency improvements	P39-P42	●
EN6	Initiatives to provide energy-efficient or recyclable energy based products and services, and reductions in energy requirements as a result of these initiatives	P39-P42	●
EN7	Initiatives to reduce indirect consumption and reductions achieved	P39-P42	●
EN8	Total water withdrawal by source	P43-44	●
EN9	Water sources significantly affected by withdrawal of water	P43-44	●
EN10	Percentage and total volume of water recycled and reused	P43-44	●
EN11	Location and size of land owned, leased, managed in or adjacent to, protected areas and areas of high biodiversity value outside protected areas	P41	●

EN12	Description of significant activities, products and service on biodiversity in these areas.	P41	●
EN13	Habitats protected or restored	P41	●
EN14	Strategies, current actions and future plans for managing impacts on biodiversity	P41	●
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	P41	●
EN16	Total direct and indirect GHG emissions by weight	P42	●
EN17	Other relevant indirect GHG emissions by weight	P42	●
EN18	Initiatives to reduce GHG emissions and reductions achieved	P40/P42/P43-44	●
EN19	Emissions of ozone-depleting substances by weight		○
EN20	NOx, SOx and other significant air emissions by type and weight	P40/P42/P43-44	●
EN21	Total water discharge by quality and destination	P43-44	●
EN22	Total weight of waste by type and disposal method	P40/P43-44	●
EN23	Total number and volume of significant spills	P26	●
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	P41	●
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	P39-41	●
EN27	Percentage of products sold and their packaging materials that are reclaimed by category		⊗
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulation		No such incidents
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	P41	●
7	Labor practices and decent work		
LA1	Total workforce by employment type, employment contract, and region, broken down by gender	P64	●
LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.	P64-66	●
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations	P64-66	●
LA4	Percentage of employees covered by collective bargaining agreements	P64	●
LA5	Minimum notice periods regarding significant operational changes, including whether it is specified in collective agreements	P64-66	●
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		○
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work related fatalities by region and by gender.	P26/P65-66	●
LA8	Education, training, counseling, prevention and risk-control programs in place to assist workforce members, their families or community members regarding serious diseases	P67-68/P69-70	●
LA9	Health and safety topics covered in formal agreements with trade unions	P65	●
LA10	Average hours of training per year per employee by gender, and by employee category.	P65	●
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them with managing career endings	P65	●
LA12	Percentage of employees receiving regular performance and career development reviews, by gender.	P65	●
LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	P64	●
LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	P64	●
LA15	Return to work and retention rates after parental leave, by gender.		○

8	Human Rights		
HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.		○
HR2	Percentage of significant suppliers, contractors and other business partners that have undergone human rights screening, 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.	P65	●
HR4	Total number of incidents of discrimination and corrective actions taken.		No such incidents
HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.		No such compliance
HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.		○
HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.	P66-67	●
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 compliance
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.		○
HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.		○
9	Society		
SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	P41	●
SO2	Percentage and total number of business units analyzed for risks related to corruption	P15	●
SO3	Percentage of employees trained in the organization's anti-corruption policies and procedures	P15/P67	●
SO4	Actions taken in response to incidents of corruption	P15/P67	●
SO5	Public policy positions and participation in public policy development and lobbying	P4/P66-67	●
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 compliance
SO9	Operations with significant potential or actual negative impacts on local communities.		○
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.	P23-24/P37-44 P66-68	●
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		○
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		○
PR3	Type of product and service information required by procedures, and percentage of significant products and service 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 incidents
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	P66-68	●
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 incidents
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data		No such incidents
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services		No such incidents

Indicator Index 2:

Social Responsibility Indicator System for Power Generation Industry

Indicator Numbers and Description	Report Section(s)
Part I: Foreword (P series)	
(P1) Report specifications	
P1.1 Reporting period	Inside front cover
P1.2 Scope of reporting organization	Inside front cover
P1.3 Reporting cycle	Inside front cover
P1.4 Reported data description	Inside front cover
P1.5 Reference standards	Inside front cover
P1.6 Guarantee on report reliability	Inside front cover
P1.7 The contact person for inquiries and questions about the report and its content, and his or her contact details	P76
P1.8 How to obtain the report and extended reading	Inside front cover
(P2) From the CEO	
P2.1 Statement of the relation between the organization and social responsibility	P1-2
P2.2 Summary of social responsibility performance and areas for improvement in the reporting year	Not disclosed
(P3) Responsibility Model	
P3.1 CSR Model	Inside front cover
(P4) Company profile	
P4.1 Company name, form of ownership and location of headquarters	P10
P4.2 Main Products and services of the organization	P10
P4.3 Geographic coverage and structure of business operations	P10-11
P4.4 Size of business	P10
P4.5 Corporate governance structure	P10
P4.6 Structure of board of directors	not applicable
(P5) Key Performance indicator matrix	
P5.1 Social responsibility performance comparison schedule	Not disclosed
P5.2 Key performance data sheet	P17
P5.3 List of recognitions received during the reporting period	P24/P49/P68
Part II: Responsibility management (G series)	
(G1) Responsibility Strategy	
G1.1 CSR Concepts	head page /P20/30/38/46/56/64
G1.2 Core issues on social responsibility	P19-25/P29-34/P37-41 P45-51/P55-59/P63-67
G1.3 Planning on CSR	Not disclosed
(G2) Responsibility management	
G2.1 Social responsibility leadership	P16
G2.2 Social responsibility management organization system	P16
G2.3 Social responsibility management system	P16
G2.4 Social responsibility training	P16
(G3) Responsibility Blend	
G3.1 Promoting the transformation of special work	P15-16
G3.2 Encourage subsidiaries to implement social responsibility	P15-16
G3.3 Encouraging partners to implement social responsibility	P16/P22
(G4) Responsibility performance	
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Indicator Index 3 : 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, labor standards, environment and anti-corruption. These principles are from Universal Declaration of Human Rights, Declaration on Fundamental Principles and Rights at Work by International Labor Organization, and Rio Declaration on Environment and Development.

Huaneng, as the first Chinese power industry joined the United Nations Global Compact in November 2007, has been actively carrying out the ten principles of the Global Compact by promoting safe, optimal, green, healthy, international and harmonious development.

	Ten Principles	Location in the Report	Implementation
Human Right	Respect and support the protection of internationally proclaimed human rights	P64-66	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	P64-66	
Labor	Uphold the freedom of association and the effective recognition of the right to collective bargaining	P64	Adhere to fair and just employment policy, strictly follow national laws and regulations on labor relationship management and labor contracts so as to strengthen the management of employees' labor contracts. Establish workers' congress system and the system of making the company's 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 labor	P64	
	Effective abolition of child labor	P64	
	Elimination of discrimination in respect of employment and occupation	P64	
Environment	Take a precautionary approach to environmental challenges	P37-41/P43-44	
	Undertake initiatives to promote greater environmental responsibility	P40-41/P43-44	Accelerate the transformation of the development mode, optimize the industrial structure, speed up eliminating backward production capacity, develop clean energy, and vigorously develop wind energy, hydropower and nuclear power, and actively cope with global climate change. By means of scientific and technological innovation, we actively develop clean power generation technology, and create energy-saving, environmental-friendly coal-fired power plants to reduce the impact on the environment.
	Encourage the development and promotion of environmental-friendly technologies	P40-41/P43-44	
Anti-corruption	Work against corruption in all its forms, including extortion and bribery	P15/P67	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 clean governance, thoroughly carry out special activities on combating commercial bribery, and standardization of our operations and transactions.

Rating the Report on China Huaneng Group Sustainability Report 2011

Upon the request of China Huaneng Group, CSR Research Center of Economics Division of the Chinese Academy of Social Sciences invited experts from the Chinese Expert Committee on CSR Report Rating to form China Huaneng Group Sustainability Report 2011 Rating Team. The rating team rated the China Huaneng Sustainability Report 2011 ("report") as follows.

1. Rating Criteria

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 2.0) published jointly by the aforesaid Center, China Enterprise Confederation, China Petroleum and Chemical Industry Association, China Light Industry Federation, the Sino-German Corporate Social Responsibility Project, China WTO Tribune and China Committee of Corporate Citizenship.

2. Rating Results

Completeness (★★★★★)

The Report discloses information on corporate responsibility practices in terms of safety performance, economic performance, environment and social performance. With 62.7% of Key Performance indicators for electric utilities industry being disclosed, the report has excellent completeness.

Materiality (★★★★☆)

The Report discloses nearly all the material issues for the electric utility industry. Adding corporate responsibility practice in international market in response to the public concern over Chinese companies going overseas, the report has good materiality.

Balance (★★★★☆)

This report discloses negative information on work-related injuries and casualties, equipment breakout, unexpected suspension etc. The company reflects on the cause of incidents. Therefore bears considerable balance.

Comparability (★★★★★)

This Report discloses data on 41 key performance indicators of five consecutive years. The indicator "coal consumption for power supply" is compared with national average level. The report has excellent comparability.

Readability (★★★★★)

This report illustrates the performance using user friendly charts, tables and pictures. The report has a clear structure, concise and fluency language. Beautiful and simple design in three colors makes this report very readable.

Creativity (★★★★☆)

This report illustrates the corporate sustainability model. Report framework and contents correspond to the sustainability model. Each chapter includes corporate perception, goals, measures, performance and case studies. Therefore bears considerable creativity.

Overall rating (★★★★★)

Through evaluation and deliberations, the rating team agreed to rate China Huaneng Sustainability Report 2011 as extraordinary by giving a five-star rating to it.

3. Suggested improvements

1. Disclose and elaborate on negative incidents analysis. Disclose corporate countermeasures and precautions where relevant.

2. Select more diverse pictures to better illustrate the stories and cases.

4. Rating team

Team leader: Peng Huagang, Vice president of executive council of the Center and director general of Research Bureau, SASAC.

Team members: Hu Xiaozheng, Director of Electric Power Reliability Management Center, State Electricity Regulatory Commission

Yin Gefei, Vice Director of WTO Tribune

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Director general of Research Bureau of SASAC

韩尚



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专家评级委员会
Chinese Expert Committee on CSR Report Rating

Terminology

◎ 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.

◎ High Temperature Gas-cooled Reactor (HTGR)

The High Temperature Gas-cooled Reactor is a kind of nuclear reactor that takes helium gas as a cooling agent, with a high exit temperature. The high temperature gas-cooled reactor uses coated particle fuel and graphite as a moderator. The exit temperature of the reactor center is from 850°C to 1,000°C, and even higher. The fuel is usually highly-concentrated uranium dioxide, and sometimes is low-concentration uranium dioxide. The high temperature gas-cooled reactor has such advantages as high thermal efficiency (40-41%), high burn-up fraction (up to 20 MW day/ton uranium, and high conversion ratio (0.7-0.8).

◎ 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 the efficiency of coal-fired power generation and achieve near-zero emissions of pollutants and CO₂.

◎ 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.

◎ Economic Value Added (EVA)

Economic Value Added is a comprehensive tool or index used to measure if an enterprise creates value 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.

◎ Carbon Capture, Utilization and Storage (CCUS)

CCUS technology is a new development trend of carbon capture and storage (CCS) technology, which purifies carbon dioxide emitted in the production process, and puts it into new production processes. Thus, CO₂ can be recycled in production rather than simply being stored. Compared with CCS technology, CCUS technology may use CO₂ as a resource to produce economic benefits, so it is a more realistic operational technology.

◎ Safety Evaluation

It refers to a method to comprehensively apply safety system engineering, in which we measure and predict the safety of the system, identify the dangers and insecure elements, and make qualitative and quantitative analysis of them so as to confirm the possible causes of danger and their severity, make correct evaluations about the safety of the system, and correspondingly provide concrete countermeasures to eliminate unsafe elements and dangers. Through implementing these countermeasures in a comprehensive, systematic, purposeful and planned way, we may standardize and normalize safety management, improve the standards of safe production, and prevent the occurrence of accidents in advance.

◎ “Three Synchronizations” in Environmental Protection

Article 26 of the Environmental Protection Law in China stipulates that “installations for the prevention and control of pollution at a construction project must be designed, built and commissioned together with the principal part of the project. No permission shall be given for a construction project to be commissioned or used until its installation for the prevention and control of pollution are examined and considered to be up to the standard by the competent department of environmental protection administration that examined and approved the environment impact statement.” This stipulation is known as the “Three Synchronizations” system in the Environmental Protection Law in China.

◎ “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 workers 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 (2011) 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 would be grateful if you would 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 Huaneng'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

- In your opinion, which part of this report is most satisfactory?
- What information that you need to know is not included in this report?
- What's your advice on our future sustainability reports?

Thank you for your support and cooperation.

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	Stamp
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No. 4, Fuxingmennei Street, Xicheng District, Beijing

China Huaneng Group



Postal Code:

