



This report is printed with environmentally friendly paper



2018 SUSTAINABILITY REPORT



CHINA HUANENG GROUP CO., LTD.



2018 Sustainability Report Responsibility Facilitates Development



The logo of China Huaneng Group consists of the deformation of letters "H" and "N".

"H" and "N" are the first letters of Chinese phonetic transcription of "Huaneng", and the meaning of the combination is: contributing energy and adding power for rejuvenating Chinese nation while creating happiness.

Letter "H" adopts a bold font, which is powerful and vigorous, presenting a visual image of safety, reliability and steadiness; letter "N" connects letter "H" with three rays to form a lightning font, symbolizing perpetual and unlimited power; and dark blue is chosen as the base color, demonstrating solemnness, rigor, serenity and harmony, as well as broad-mindedness and lofty ambition.

The shape of the letter resembles mountain peaks, emitting a grand atmosphere; the composition of the logo is neat and orderly, giving a sense of solemnness; and the superposition effect is concise and lively, full of vitality, exhibiting the sacred mission and demeanor of Huaneng as a key state-owned backbone enterprise.

About This Report

Reporting Period

January 1, 2018 to December 31, 2018. Some of the contents go beyond the above range.

Reporting Cycle

Our report is an annual report. This edition is the 13th sustainability report released by the company since 2006.

Main Contents

This report outlines our intentions, actions and performance in 2018 on economic, environmental and social issues. Its relevant content, data and cases are rooted from relevant company documents, statements and grassroots enterprises.

Compilation Basis

Guidelines on Social Responsibility (GB/T36000-2015)

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 4.0)

Guidelines on Social Responsibility of Chinese Industrial Enterprises and Industrial Associations

Unified Standard for the Sustainability Reporting from the Global Reporting Initiative (GRI)

ISO 26000: Guidance on Social Responsibility (2010)

Title Description

For convenience purpose of expression, in this report, "CHNG", "Huaneng Group", "Huaneng", "the Company" and "We" refer to "China Huaneng Group Co., Ltd."

Online Access to the Report

The report is available in Chinese, English and an animation version. The Chinese version and the animation version are released at the same time. You are welcome to visit our website:

<http://www.chng.com.cn> or call the following number: 010-63228777

E-mail: hnshzr@chng.com.cn

Address: No. 6, Fuxingmennei Street, Xicheng District, Beijing

Postal Code: 100031

Scan QR code to access the animation version report



China Huaneng

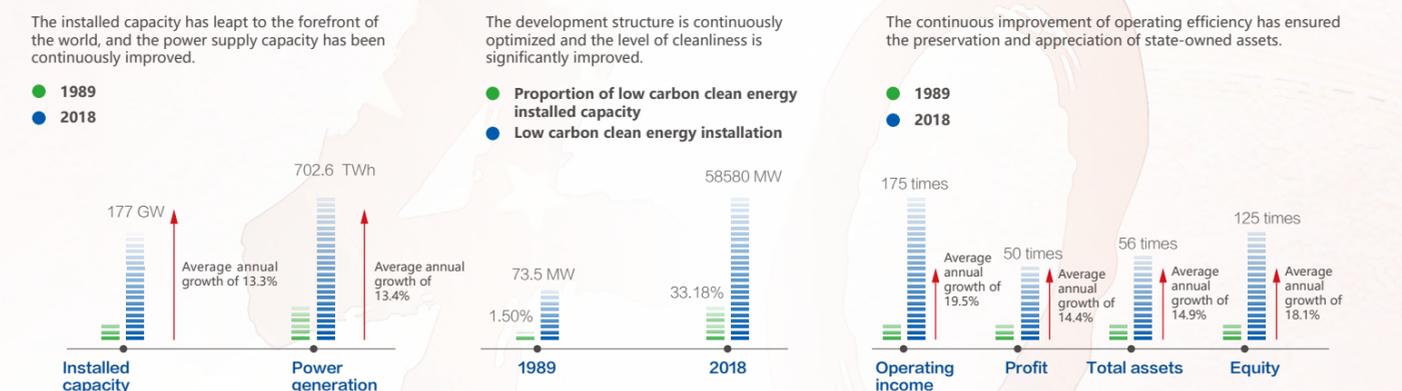
The Story of Spring Continued

2018 is the 40th anniversary of reform and opening-up. China Huaneng emerged and expanded during the process of reform and opening-up. Established in 1985, the company has always insisted on development as the top priority, emancipating the mind, advancing with the times, and making great transformations from small to large, from weak to strong.

40 Years • March Forward Regardless of Hardships

The company achieved leapfrog development. The installed capacity reached 177 GW, ranking top in the world. Total assets exceeded one trillion yuan. Our indicators in production, management, energy conservation and environmental protection are industry-leading. The proportion of low-carbon clean energy installed capacity has increased year by year. Since the implementation of the performance appraisal by the State-owned Assets Supervision and Administration Commission (SASAC) in 2004, the company has won 13 times of the Annual Business Performance Assessment Level A and 4 times of Term Assessment Level A. In the domestic power generation enterprises, the company has become the first to be enlisted in the rank of Global 500.

The company's value fully demonstrated. In China's power industry, we took the lead in introducing foreign capital and in reforming the shareholding system. We established the first domestically produced 600 MW supercritical and 1000 MW ultra-supercritical coal-fired power unit, the first IGCC demonstration power station with independent intellectual property rights; built the world's first 300m double-curved arch dam, the world's highest roller compacted concrete (RCC) gravity dam and so on.



40 Years • Inheritance

Must adhere to the leadership of the Party. The development of Huaneng's cause fundamentally lies in closely relying on the Party's leadership, lies in the scientific guidance of the Party's innovation theory. This is the pinnacle of Huaneng's sustainable and healthy development.

Must adhere to reform and opening-up. The history of Huaneng's development is a history of deepening reform and expanding openness. This is the source of vitality for Huaneng's sustainable and healthy development.

Must adhere to technological innovation. Huaneng has created dozens of "firsts" in the history of China's power industry, and continues to lead the industry's technological progress. This is the engine of Huaneng's sustainable and healthy development.

Must adhere to human orientation. During the development course, Huaneng relies on the unremitting struggle of all cadres and workers, and has forged a team of cadres and workers who are loyal to the Party, excellent in quality, excellent in style, and able to fight a tough battle. This is a strong cornerstone for Huaneng's sustainable and healthy development.

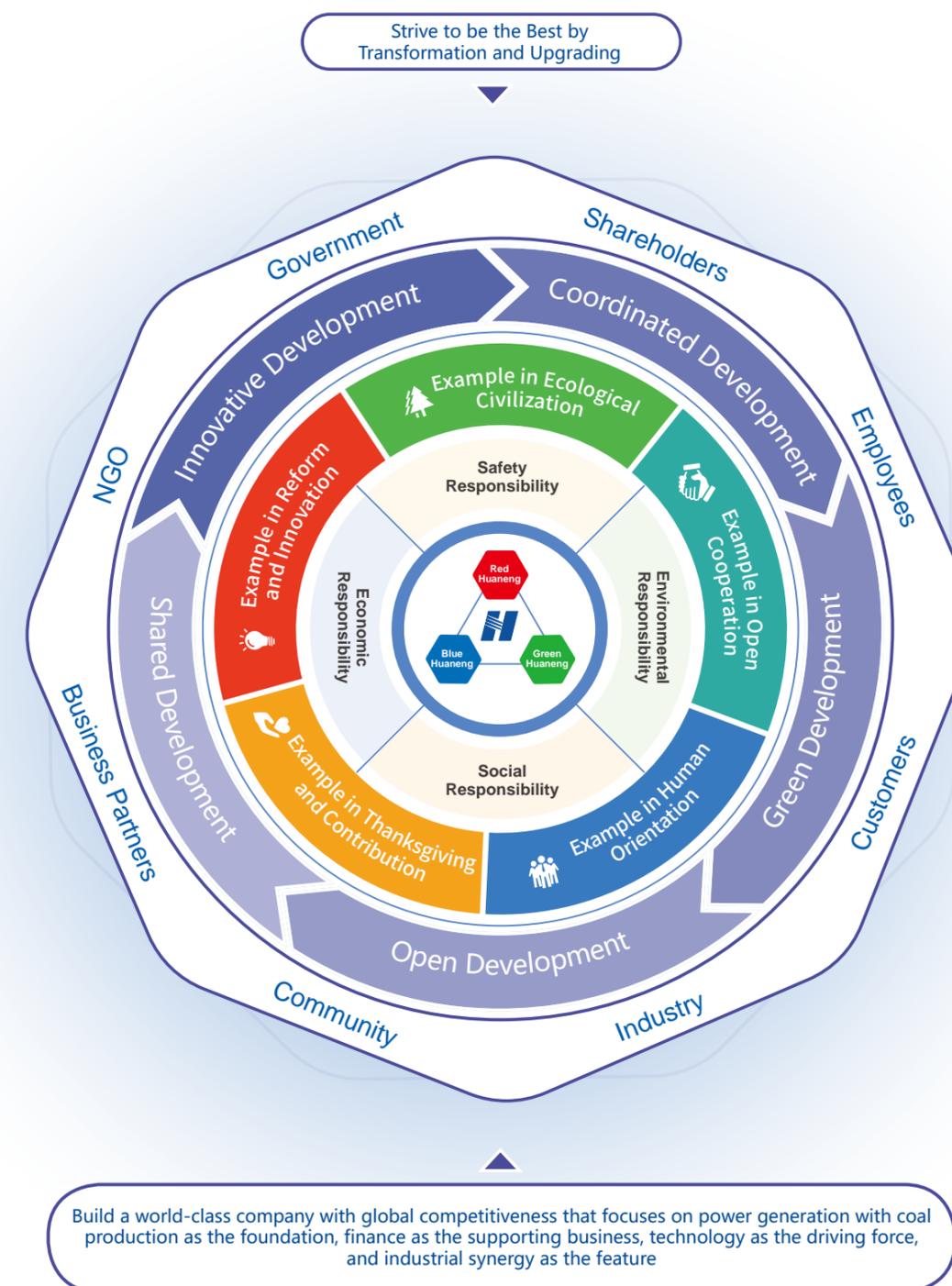
Must adhere to the three-color mission. This cultural concept has been deeply integrated into the concrete practice of the company's reform and development. The construction of "Three-color Company" is the value pursuit of Huaneng's sustainable and healthy development.

China Huaneng

Declaration of Sustainable Development

- ◎ Persist in 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 resources-conserving and environmentally friendly society
- ◎ Persist in pursuing enterprise value in a rational way so as to set an example in promoting harmonious progress of both the enterprise and the society
- ◎ Persist in the principle of 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 paying back to society and benefiting the people so as to set an example in practicing social ethics

Sustainable Development Mode



Board of Directors



Secretary of the CPC Leading Group and Chairman of the Board of Directors
Shu Yinbiao (third from left)

External Board Director
Zhang Fusheng (third from right)

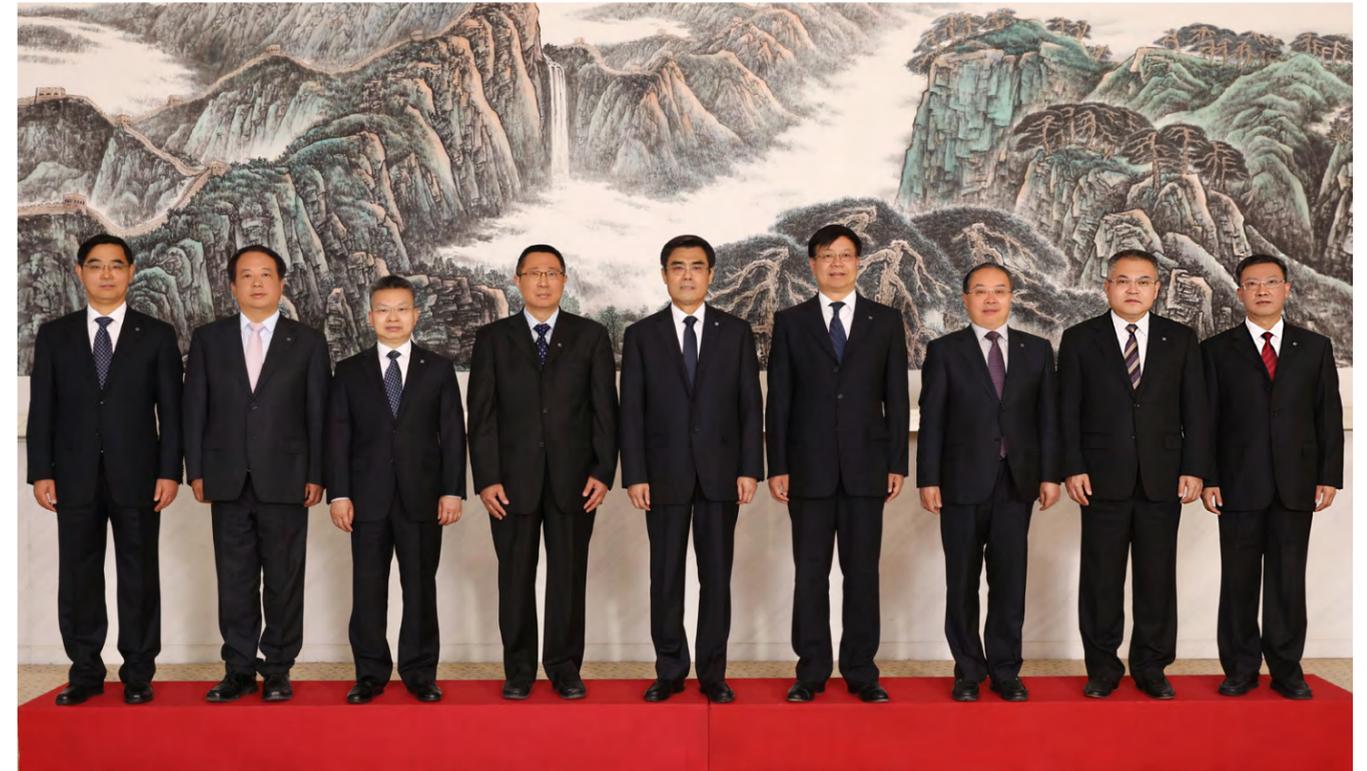
External Board Director
Zhu Yuanchao (second from left)

External Board Director
Yang Qing (second from right)

External Board Director
Shen Diancheng (first from left)

External Board Director
Wu Qing (first from right)

Management Team



Secretary of the CPC Leading Group and Chairman of the Board of Directors
Shu Yinbiao (fifth from left)

Deputy Secretary of the CPC Leading Group and Vice President
Deng Jianling (fourth from right)

Member of the CPC Leading Group and Vice President
Fan Qixiang (fourth from left)

Member of the CPC Leading Group and Vice President
Wang Min (third from right)

Member of the CPC Leading Group and Chief Accountant
Wang Yihua (third from left)

Member of the CPC Leading Group and Vice President
Ye Xiangdong (second from right)

Member of the CPC Leading Group and Vice President
Wang Wenzong (second from left)

Member of the CPC Leading Group and Leader of the Discipline Inspection and Supervision Team
Wang Limin (first from right)

Chief Economist
Liu Wencheng (first from left)

CONTENTS

Message from Chairman	08		Reform and Innovation			Ecological Civilization			Open Cooperation			Human Orientation			Gratefulness and Contribution
Huaneng Wisdom Significantly Improve Party Building	10	Help the Economy Take Off	18	Help Green Sustainability	28	Enable Value Sharing	38	Prosper the Country by Enabling talents	48	Make Life More Beautiful	58				
Huaneng's Borderless Love Continuously Improve People's Livelihood and Well-being	12	Guarantee Power Supply	20	Improve Environmental Management	30	Deeply Cultivate Overseas Markets	40	Ensure Safe Production	50	Carry out Targeted Poverty Alleviation	60				
Huaneng Solution Contribute to a Green and Beautiful China	14	Optimize Industrial Layout	21	Adjust Energy Structure	30	Drive Local Development	42	Implement Employee Responsibility	53	Create Brand Public Welfare	66				
Huaneng Power Light up "Belt & Road" Initiative	16	Improve Development Quality	22	Speed up Pollution Prevention	32	Enhance Partnerships	44	Data Documentary · Sharing People Orientation	56	Data Documentary · Sharing Gratefulness and Contribution	68				
		Deepen Scientific and Technological Innovation	24	Promote Environmental Awareness	34	Strengthen Responsible Procurement	45	Comments by All Parties · On People Orientation	57	Comments by All Parties · On Gratefulness and Contribution	69				
		Data Documentary · Sharing Reform and Innovation	26	Data Documentary · Sharing Ecological Civilization	36	Data Documentary · Sharing Openness and Cooperation	46								
		Comments by All Parties · On Reform and Innovation	27	Comments by All Parties · On Ecological Civilization	37	Comments by All Parties · On Openness and Cooperation	47								

Declaration of Sustainable Development

Persist in serving national interests and development strategies so as to set an example in promoting economic and social development in all respects

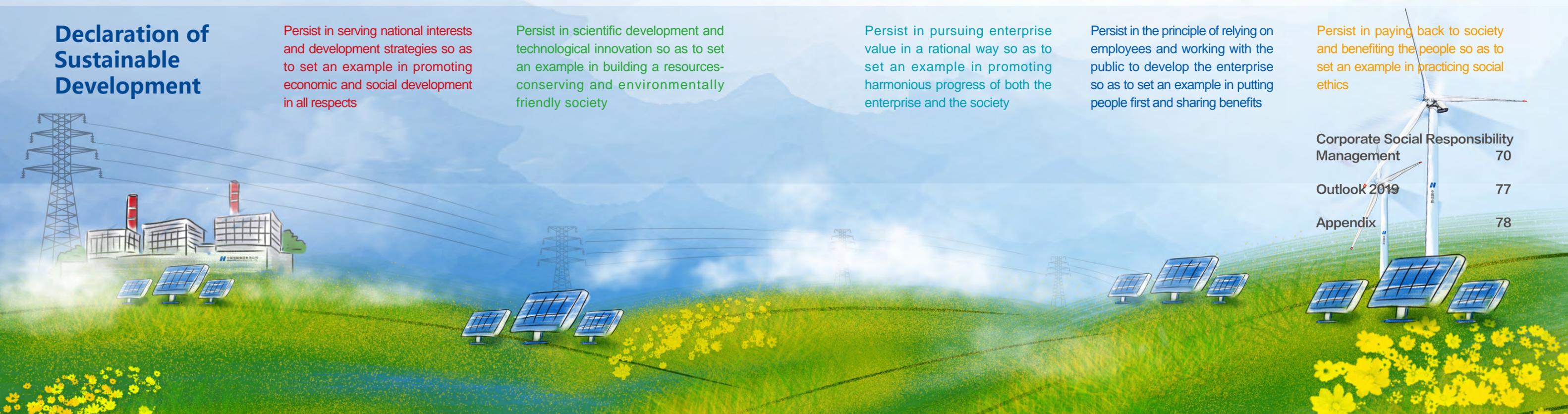
Persist in scientific development and technological innovation so as to set an example in building a resources-conserving and environmentally friendly society

Persist in pursuing enterprise value in a rational way so as to set an example in promoting harmonious progress of both the enterprise and the society

Persist in the principle of 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 paying back to society and benefiting the people so as to set an example in practicing social ethics

Corporate Social Responsibility Management	70
Outlook 2019	77
Appendix	78



Message from Chairman



Shu Yinbiao: Secretary of the CPC Leading Group and Chairman of the Board of Directors

The year 2018 is the beginning year of full implementation of the spirit of the 19th CPC National Congress and the 40th anniversary of reform and opening-up. China Huaneng Group Co., Ltd. is a product of reform and opening-up. It is a banner and backbone of China's power industry. As a key state-owned energy enterprise, the company firmly implements the decision and deployment of the CPC Central Committee and the State Council under the strong leadership of the CPC Central Committee with Comrade Xi Jinping as the core, adheres to the five development concepts of "innovation, coordination, green, openness and sharing", bears in mind the mission of "Three-color Company", strives to be the "Five Examples" of sustainable development, and effectively takes on the duties and responsibility of SOEs, and creates a world-class company with global competitiveness.

In the past year, in the face of the severe and complicated external environment and the arduous task of reform and development, China Huaneng has earnestly implemented the spirit of the company's 2018 Work Conference and the Party Building Work Conference, tackled difficulties, and successfully completed various objectives and tasks. The company insisted on in-depth study and implementation of Xi Jinping's Thoughts on Socialism with Chinese Characteristics for the New Era and the Spirit of the 19th CPC National Congress as the primary political task, and continued to enhance understanding towards Xi's theory. **Reform and innovation helped the economy take off.** The company adhered to our essential responsibility to ensure stable and safe supply of electricity during major national events and in adverse weather conditions. We continuously improved the level of industrial synergy, and achieved profit in all sectors, with a profit growth rate higher than the operating income growth rate by 12.4 percentage points; improved the state-owned enterprise system, and continued to deepen various reforms. The first board of directors officially formed; major breakthroughs had been achieved in the development of many cutting-edge technologies, such as Shidaowan High-temperature Gas-cooled Reactor Demonstration Project, IGCC Demonstration Power Station, the hydraulic lift of Jinghong Hydropower Station, and Nuozhadu Hydropower Station. **Ecological civilization helped green sustainability.** The company issued the "Implementation Plan for Pollution Prevention and Control"; actively adjusted the energy structure, and the proportion of low-carbon clean energy installed capacity increased by 2.18 percentage points year-on-year; the energy consumption index continued to improve, the coal consumption for power supply remained the best in the industry, and the proportion of ultra-low emission coal-fired units reached 94.7%. **Open cooperation enabled value sharing.** The company actively served the "Belt and Road" construction. Sahiwal Coal Power Plant won the Pakistan Outstanding Achievement Award and the National Quality Engineering Gold Award; Se San-II Hydropower Station, the largest hydropower project in Cambodia, was completed and put into operation. We promoted the implementation of the national strategy, participated in the preparation and establishment of the Nuclear Power Innovation Center of Xiong'an New District, and established a supply chain platform technology company in Hainan Free Trade Zone. **Human orientation prospered the country by enabling talents.** The company promoted the reform and development of the safe production field, and the safety management system was continuously improved. Equipment management

continued to strengthen. No major or above degree accidents occurred throughout the year. All 17 production mines passed the national safety production standardization acceptance. **Gratefulness and contribution made life more beautiful.** The company invested 601 million yuan throughout the year, dispatched 168 cadres to promote poverty alleviation work in 142 poverty-stricken villages across the country, and assisted Hengshan District of Yulin City, Shaanxi Province, and Aheqi County of Xinjiang to achieve poverty alleviation and removed the label of poverty-stricken area. We won the China Charity Award and the optimal level of fixed-point poverty alleviation work of the State Council Leading Group for Poverty Alleviation and Development.

The 19th CPC National Congress pointed out that socialism with Chinese characteristics had entered a new era, and China's economy had shifted from a high-speed growth stage to a high-quality development stage. China Huaneng will profoundly understand and grasp the new connotation of important strategic opportunities, implement new development concepts, and put into effect the high standards of quality development, strive in 3 years and ensure within 5 years to enter into the world first-class enterprise rankings listed by SASAC with strong global competitiveness. In the future, the company will strive to achieve the "six new upgrades", profoundly grasp the new opportunities brought about by energy transformation and reform, and achieve new upgrades in green development; profoundly grasp the new opportunities brought about by deepening reforms, and achieve new upgrades in operational excellence; profoundly grasp the new opportunities brought about by the energy science and technology revolution and the digital revolution, and achieve new upgrades in the ability of scientific and technological innovation; profoundly grasp the new opportunities brought about by the "Belt and Road" Initiative, and achieve new upgrades in international operations; profoundly grasp the new requirements of safety and environmental protection, and achieve new upgrades in intrinsic safety; profoundly grasp the general requirements of Party building in the new era, and achieve new upgrades in the quality of Party building work. At the same time, the company will focus our efforts on achieving "two major breakthroughs" in structural adjustment and in "dealing with Zombie companies and enterprises in difficulties".

It's high time to seize the momentum with times. At the tide of the development of the times, China Huaneng will be more closely united around the CPC Central Committee with Comrade Xi Jinping as the core, accelerate the pace of creating world-class enterprises with global competitiveness, and strive for high-quality development, make greater contributions to the victory of building a well-off society in an all-round way and to win the great victory of socialism with Chinese characteristics in the new era, and celebrate the 70th anniversary of the founding of New China with outstanding achievements.

Huaneng Wisdom Significantly Improve Party Building



Interpretation of Keywords of Reform and Opening-up: Party Building

In his speech at the celebration of the 40th anniversary of reform and opening-up, Xi Jinping mentioned:

For 40 years, we have persisted in that the Party should police itself and imposed strict discipline on its members, purified the political ecology within the Party, improved party conduct and discipline with perseverance, vigorously combated formalism, bureaucracy, hedonism and extravagance, severely punished corruption with zero tolerance, and won an overwhelming victory in the fight against corruption.

On the way forward, adhering to the Party's leadership, we must constantly improve the Party's leadership and make the Party's leadership more adaptable to the requirements of practice, the times, and the people. On the issue of adhering to the Party's leadership, the major principle that determines the future and destiny of the Party and the country, the whole Party and the whole country must firmly maintain a high degree of ideological consciousness, political consciousness, and self-consciousness.

Carry Out the Latest Spirit of the Party

The company has always regarded the study, propagation and implementation of Xi Jinping's Thoughts on Socialism with Chinese Characteristics for the New Era and the spirit of the 19th CPC National Congress as the primary political task, firmly grasps the requirements of learning and understanding and practicing, starting from five aspects, namely, learning style, connecting with reality, promoting work, checking and assessing, and leaders taking the role model, continue to encourage further study and practices.

The company deployed learning tasks, deepened Party building training, organized more than 600 rounds of training courses, and used the carriers such as newsletters, magazines, and WeChat public account to conduct multi-level and all-round publicity to create a strong learning atmosphere. In 2018, more than 63,000 Party members and employees participated in the online test and knowledge contest.

Strengthen the Foundation of Party Building at the Grassroots Level

The company attaches great importance to the Party building work of grassroots units, and the coverage rate of grassroots Party organizations has reached 100%. The company formulates measures for standardized construction of grassroots Party committees and Party branches, continuously strengthens basic work, continuously increases security, clarifies Party building work functions, implements Party building work funds according to regulations. Problems in grassroots party building work institutions, personnel, funds, venues, etc. have been significantly improved. The company carried out in-depth "Party Member Demonstration Action", established more than 10,000 various kinds of Party members' demonstration posts and Party members' responsibility areas, and encouraged Party members to take the position as pioneers and set examples.

Promote the Construction of Party Conduct and Clean Governance

The company attaches great importance to the integrity of the party building work, and promotes in-depth disciplinary inspection supervision and patrol inspection work. In 2018, the company carried out in-depth supervision and inspection, innovated supervision methods, focused supervision on the implementation of major decision-making arrangements, formulated more than 30 rectification measures, issued 17 supervision opinions, and the discipline inspection team interviewed 19 headquarters department heads. The company formulated a five-year plan for inspection work, dispatched 8 inspection teams, conducted 3 rounds of regular inspections, and 1 round of patrol "look-back" inspections, covering 2 headquarters departments, 16 second-level unit Party committees, and sinking patrol inspections of 49 grassroots enterprises. The inspections found 1,241 problems, and held 66 party organizations and 195 Party members accountable.

Strengthen the Foundation of Party Building at the Grassroots Level

The company has perfected the Party building work responsibility system, and the management system has been continuously improved. We established 86 assessments points of 27 items in 6 aspects, comprehensively carried out assessment and evaluation, and "double-linked" the assessment results with the total salary and leadership performance compensation, and changed the responsibility for Party building work to a rigid indicator. In the 2017 evaluation of the SOEs Party building work responsibility system, the company ranked in the forefront.

Strengthen the Talent Team Construction

The company focuses on building high-quality professional cadres and talents, constantly improving the talent selection mechanism, highlighting political standards, adhering to appropriate personnel, and optimizing and adjusting the structure of the leadership team. We formulated the Implementation Measures for Finding, Training and Selecting Excellent Young Cadres and trained more than 90 young cadres. At the same time, We explored the professional manager system, steadily promoted the reform of market-based employment and remuneration systems, and piloted market-based selection and appointment of general managers of second-level companies.



Shidaowan Company "Learning and Implementing the 19th CPC National Congress, I Will Shine for the Party Flag" Party Member Demonstration Action



Delingha 100 MW Solar PV Project to Set Up a Party Member Commando



Shanghai E-Commerce Company General Party Branch Theme Day



Huaneng Renewables Corporation Limited Party Education Program



Luohuang Power Plant No. 5 Unit Flow Retrofit Team Party Member Pioneers

Huaneng's Borderless Love Continuously Improve People's Livelihood and Well-being



Interpretation of Keywords of Reform and Opening-up: Targeted Poverty Alleviation

In his speech at the celebration of the 40th anniversary of reform and opening-up, Xi Jinping mentioned:

For 40 years, we have always insisted on safeguarding and improving people's livelihood in the course of development, and comprehensively promoting upbringing for the youth, education at school, income from labor, medical care for the sick, pension for the aged, house for living, and support for the weak, and continuously improve people's lives and enhance people's well-being.

On the way forward, we must adhere to the supply-side structural reform as the main line, actively rationalize the development mode, optimize the economic structure, transform the growth momentum, actively expand domestic demand, implement the regional coordinated development strategy, implement the rural revitalization strategy, and resolutely fight the battle against poverty.



Construct a power station, drive local economy, protect local environment, benefit local people, and build a harmonious society for local people.

The company continued to strengthen poverty alleviation management work, formulated and implemented the "Red Action Plan" Work Scheme for Targeted Poverty Alleviation, invested 601 million yuan for poverty alleviation funds without return, dispatched 45 poverty alleviation teams and 168 cadres and workers, coordinated the deployment of 32 second-level companies to carry out poverty alleviation work in 142 poverty-stricken counties and villages across the country, and implemented 372 poverty alleviation projects to help more than 70,000 people achieve stable poverty alleviation. Since the 18th CPC National Congress (2013-2018), the company's poverty alleviation investment reached a total of 1.875 billion yuan.

The company conscientiously implemented the work deployment of the CPC Central Committee and the State Council on fixed-point poverty alleviation, solidly carried out fixed-point poverty alleviation and counterpart support work in Hengshan District of Yulin City, Shaanxi Province, Aheqi County, Ke Prefecture, Xinjiang, and Jianzha County, Huangnan Prefecture, Qinghai Province, assisting Hengshan District of Yulin City and Aheqi County in subsequently achieving poverty alleviation. With our outstanding performance in targeted poverty alleviation work, the company was awarded the "Good" evaluation (optimal level) during the annual fixed-point poverty alleviation work assessment by the State Council Leading Group for Poverty Alleviation and Development, and "China Charity Award" - the highest award in China's public welfare field issued by the Ministry of Civil Affairs.

Targeted Poverty Alleviation • Huaneng Red Scheme

Red Action Plan Work Scheme of China Huaneng Group Co., Ltd. for Targeted Poverty Alleviation

◎ Guiding Principles and Overall Objectives

Earnestly study and implement the spirit of the 19th CPC National Congress and Xi Jinping's Thoughts on Socialism with Chinese Characteristics for the New Era, profoundly understand the spirit of the important speech delivered by General Secretary Xi Jinping at the symposium on combating targeted poverty alleviation, firmly establish the "Four Consciousnesses", strengthen the responsibility, adhere to the targeted policy measures, implement the "Red Action Plan" for the tough battle against targeted poverty alleviation, and practice the mission of "Three-color Company" with practical actions.



◎ Key Works

Implement targeted poverty alleviation and carry out in-depth fixed-point targeted poverty alleviation assistance

- Formulate and implement a three-year plan to help the poverty alleviation areas get rid of poverty
- Solidly promote counterpart support, and increase support to poverty-stricken areas
- Give full play to the industrial advantages, combine poverty alleviation combat and fulfill social responsibility
- Build a resource matching platform, and guide employees to support poverty alleviation

Implement targeted assistance to poverty, firmly provide support and aids to employees in difficulty

- Comprehensively and thoroughly survey the situation of employees in difficulty and improve the dynamic archives
- Provide customized supports to households and take targeted poverty alleviation measures
- Strengthen source management, and effectively reduce the number of employees in difficulty because of illness
- Improve the management system, and expand the channels for poverty alleviation fundraising

◎ Work Requirements

- Deeply understand the significance of winning the battle against poverty, and correctly grasp the work direction of poverty alleviation
- Strengthen management training for cadres working in poverty alleviation, and improve the quality of poverty alleviation frontline personnel
- Strengthen poverty alleviation projects and funds supervision, and establish a sunshine poverty alleviation mechanism
- Strengthen the work style construction of poverty alleviation, and continuously carry out special problem management
- Strengthen work supervision, and consolidate the help and relief effect of difficult employees

◎ Safeguard Measures

- Strengthen organizational leadership, fully implement responsibilities, and establish a three-level management system
- Standardize the approval management of poverty alleviation projects, and ensure the safe and timely investment of funds
- Establish communication and coordination mechanisms, and ensure smooth work channels
- Strengthen publicity efforts for poverty alleviation work, and enhance corporate social responsibility image



Huaneng Solution Contribute to a Green and Beautiful China



Interpretation of Keywords of Reform and Opening-up: Beautiful China

In his speech at the celebration of the 40th anniversary of reform and opening-up, Xi Jinping mentioned:

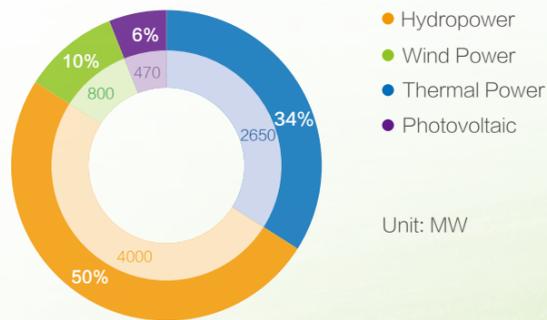
For 40 years, we have always insisted on protecting the environment and conserving resources, persisting in ecological construction, accelerating the formation of an ecological system, making significant progress in energy conservation and emission reduction, and major ecological protection and restoration projects are progressing smoothly, and ecological and environmental management has been significantly strengthened.

On the way forward, we must strengthen the construction of ecological civilization, firmly establish the concept that lucid waters and lush mountains are invaluable assets, form a green development mode and lifestyle, make our great motherland more beautiful, let the people live in a beautiful environment where the sky is bluer, the mountains are greener, and the water is clearer.

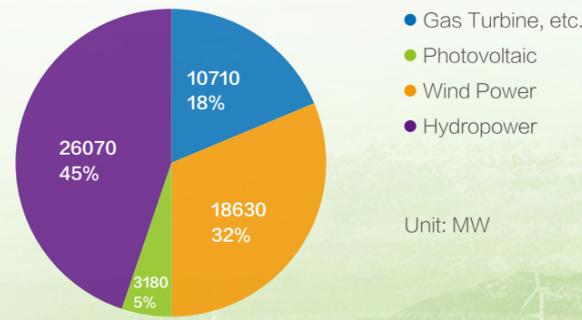
The company adheres to the green development concept that "lucid waters and lush mountains are invaluable assets", strengthens environmental management. We formulated Implementation Plan for Pollution Prevention and Control (2018-2020), and invested 5.32 billion yuan to implement this plan in 2018. By the end of 2018, a total of 281 units (112 GW) coal-fired power units had achieved ultra-low emissions, with a proportion of 94.7%, completed the "13th Five-Year" retrofit task issued by the state ahead of schedule, and environmental performance remained leading in the industry.

By the end of 2018, the company's total installed capacity reached 176.57 GW, of which low-carbon clean energy installed capacity was 58.58 GW, accounting for 33.18%, up 2.18 percentage points year-on-year; non-hydro renewable energy installed capacity was 21.81 GW, accounting for 12.35%, a year-on-year increase of 0.52 percentage point.

In 2018, the company's low-carbon clean energy investment accounted for 78.5% of all power investment. The company won the approval of low-carbon clean energy projects of 3160 MW. We put into operation low-carbon clean installed capacity of 5270 MW, including 4000 MW of hydropower, 800 MW of wind power and 470 MW of photovoltaics. We started 1500 MW low-carbon clean capacity, 1090 MW in wind power, and 410 MW in photovoltaic.



Newly completed power projects by fuel type in 2018



Composition of low-carbon clean energy installed capacity as of the end of 2018

Beautiful China • Huaneng Green Program

Implementation Plan for Pollution Prevention and Control of China Huaneng Group Co., Ltd. (2018 - 2020)

◎ Guiding Principles

Guided by Xi Jinping's Thoughts on Socialism with Chinese Characteristics for the New Era, the company conscientiously implemented deployment of the National Ecological Environmental Protection Conference, the Opinions of the CPC Central Committee and the State Council on Strengthening Ecological Environment Protection and Resolutely Combating Pollution Prevention and Control, the Three-Year Action Blue Sky Protection Campaign of the State Council, other important meetings and documents, and the spirit of the SOEs Resource Conservation Eco-Environmental Protection Conference held by SASAC in 2018, completed with high-quality the ultra-low emission retrofit, coal yard and ash field treatment, wastewater treatment, environmental protection of construction projects, coal mine environmental protection treatment and other key pollution prevention and control tasks determined by the state, achieved leading environmental protection indicators and industry leadership of environmental protection works, and improved the quality and efficiency of green development.

◎ Work Objectives

- Key targets for air pollution prevention and control
- Coal mine, ash yard, mobile source and other unorganized emission control targets
- Wastewater treatment targets
- Environmental targets of construction projects
- Coal mine environmental treatment targets

◎ Organization

In order to further advance the pollution prevention and control work, the company set up a leading team and office for "pollution prevention and control". The leading team consists of chairman that serves as leader of the team, Vice President in charge of environmental work as deputy team leader, and the main persons-in-charge of the relevant departments of the headquarters as members.



◎ Key Works

- Accelerate air pollution control
- Accelerate the advancement of retrofit on wastewater treatment
- Strengthen the environmental protection management of construction projects
- Accelerate coal mine environmental protection treatment
- Carry out air quality assurance and environmental inspection management during key periods
- Promote environmental technology research and development and new technology applications
- Deepen the diagnostic function of pollutant emission monitoring platform

◎ Specific Measures

- Decompose tasks, implement responsibilities
- Scientific management, speed up implementation
- Public opinion guidance, prevention of risks
- Tighten supervision, intensify assessment
- Guarantee funds, carry out unified coordination



Huaneng Power Light up "Belt & Road" Initiative



Interpretation of Keywords of Reform and Opening-up: "Belt & Road"

In his speech at the celebration of the 40th anniversary of reform and opening-up, Xi Jinping mentioned:

For 40 years, we have actively promoted the construction of an open world economy, built a community of shared future for mankind, promoted the reform of the global governance system, and constantly contributed China's wisdom, China's solutions and China's strength for world peace and development.

On the way forward, we must support an open, transparent, inclusive and non-discriminatory multilateral trading system, promote trade and investment liberalization and facilitation, and promote the development of economic globalization toward a more open, inclusive, universal, balanced and win-win direction. We must focus on building the "Belt and Road", work together with all parties to build a new platform for international cooperation, and add new impetus to the common development of the world.

China Huaneng actively responded to the "Belt & Road" Initiative, and has successively completed the Singapore Tembusu project, Pakistani Sahiwal Power Plant and Cambodian Se San-II Hydropower Station, continuously deepened the international production capacity cooperation and significantly enhanced the development strength of overseas projects. In view of the restriction of economic development due to power shortages in the countries along the "Belt & Road", relying on our rich experience in power development, construction and management, the company has built model power projects one after another along the "Belt & Road". Our overseas installed capacity reached nearly 10 GW, distributed in six countries, including Australia, Singapore, Myanmar, the United Kingdom, Cambodia and Pakistan, and we has taken solid steps in building a safe, clean, efficient and sustainable world-class integrated energy enterprise.

© Building a Blue "Belt & Road"

Sahiwal Coal-fired Power Plant in Pakistan was completed and put into operation in June 2017, which had set a record for the shortest construction period of the same type of units abroad, and created the "Huaneng Sahiwal Speed". The construction of two 660 MW supercritical coal-fired units was the first early harvest of major energy projects in the framework of the China-Pakistan Economic Corridor. It was also the largest coal-fired power plant invested by Chinese companies overseas. In 2018, the power plant completed a power generation of 9.2 TWh, and the equipment utilization hours were 6,983 hours, filling a quarter of the power gap in Pakistan, benefiting more than 20 million people, providing a strong energy support for local economic and social development.



Huaneng Pakistan Sahiwal Coal-fired Power Plant

© Building a Green "Belt & Road"

Myanmar Shweli River-I Hydropower Station was China's first overseas hydropower BOT project, which was put into operation in 2009, and supplied electricity to Myanmar accounted for 1/3 of Myanmar's national grid capacity. The installed capacity of Se San-II Hydropower Station in Cambodia was 400 MW. It was put into operation in October 2018, which was the longest dam in Asia and the largest hydropower station in Cambodia. The hydropower station supplies about 2 TWh of clean energy to Cambodia every year, greatly reducing the local power shortage.



Myanmar Shweli River-I Hydropower Station



Se San-II Hydropower Station

© Building a Red "Belt & Road"

The company develops projects in the countries along the "Belt & Road", focusing on the four practical areas, namely, driving the economy, protecting the environment, benefiting the people, and building a harmonious society, and strives to to achieve "consultation, contribution, shared benefits, and win-win".

During the construction of Se San-II Hydropower Station, the company invested nearly 30 million yuan to build an resettlement village for 6 affected villages, 3845 villagers of 849 households. We increased the area of cultivated land and resettlement housing for migrants in the new village, allowing migrants to own their own houses and cultivate their fields. In addition, we assisted the construction of schools, hospitals, temples, highways, drainage systems, power grids and other infrastructure in the village to effectively improve local people's livelihood.

Sahiwal Power Plant in Pakistan provides a large number of employment opportunities for local people, employing more than 2,000 people during the peak construction period of the power plant, effectively driving local economic development. In line with the goal of "localization of talents", the power plant successively recruited 200 Pakistani employees and sent 164 people to China for training for half a year to learn about power technology and enterprise management knowledge, and cultivated a large number of enterprise management talents and power plant operation and maintenance talents, which not only solved the immediate emergency problems, but was helpful for them solving the long-term development problems in the future.



Chinese Instructor at Sahiwal Power Plant
Conducting Technical Training for Local
Workers



Reform and Innovation Help the Economy Take Off

The Party's Call: Shift to High-quality Development Stage

The 19th CPC National Congress pointed out: "China's economy has shifted from a high-speed growth stage to a high-quality development stage, is now in a crucial period of transforming the development mode, optimizing the economic structure and transforming the growth momentum, and building a modern economic system is an urgent requirement that crosses the pass and the strategic target that our country develops. We must adhere to quality first, efficiency first, supply-side structural reform as the main line, promote the change of quality, efficiency and momentum of economic development, improve total factor productivity, make efforts to accelerate the construction of an industrial system characterized by real economy, technological innovation, modern finance, and human resources for coordinated development, and strive to build an economic system characterized by an effective market mechanism, dynamic micro-entities, and regulated macro-controls, and continually enhance China's economic innovation and competitiveness."

Huaneng's Action: Set an Example of Reform and Innovation

Guarantee Power Supply: The company ensures safe and stable power supply during the critical period of major national activities and in the severe cold and heat weather.

Optimize Industrial Layout: The industrial synergy was improved, and all the industrial sectors were profitable.

Improve Development Quality: The company formulated the Promotion of 'Double Hundred Actions' Work Plan for Reform of SOEs", and 3 units were included in the pilot projects of the "Double Hundred Enterprises (100 high-efficiency companies and 100 high-growth companies)" comprehensive reform by SASAC.

Deepen Scientific and Technological Innovation: The pre-combustion carbon capture technology based on IGCC won the first prize of China Electric Power Science and Technology Progress.

Guarantee Power Supply ----- 20

Optimize Industrial Layout ----- 21

Improve Development Quality ----- 22

Deepen Scientific and Technological Innovation ----- 24

Guarantee Power Supply

The company has always adhered to the essential responsibility of the power industry to ensure the supply of electricity. In the critical period of major national activities, in the weather of severe cold and heat, all employees forge ahead amidst difficulties to ensure a safe and stable supply of electricity to the general public. In 2018, the company's domestic daily power generation repeatedly broken records. After generating electricity of 2.281 TWh on January 25, the power generation on July 18 reached 2.315 TWh, a record high, up by 15% year-on-year.

Case: The Company Successfully Ensured Power Supply for the Shanghai Cooperation Organization (SCO) Qingdao Summit

As the largest power generation company in Shandong Province, China Huaneng Group Co., Ltd. Shandong Branch had conscientiously implemented the requirements of the State Energy Regulatory Authority, the CPC Shandong Provincial Committee and Shandong Provincial Government, and 43 units had been continuously operated during the SCO Qingdao Summit, providing a total of 449 GWh of clean electricity to Shandong power grid, and successfully completed the work of "guarantee power generation, maintain air quality, and maintain team stability".

To ensure that the power supply was absolutely safe during the Summit, the company fully launched the Summit power security work 3 months ago. Accordingly, the company implemented comprehensively production and administrative double-duty and "zero-report" system, established a 24-hour emergency response mechanism, and conducted multi-frequency and multi-level general security inspections. At the same time, we carried out key and special inspections on Qingdao Thermal Power Plant, Qingdao Port and other enterprises stationed in Qingdao City, and comprehensively screened out and eliminated all types of security risks and hidden dangers.

Case: The Company Combated Against the Wind and Snow, Solved the Urgent Problem of Coal Supply, and Ensured Power Supply

At the beginning of 2018, continuous heavy snowfall attacked most parts of China. The magnitude, scope and duration of the snowfall was rare in history, and the temperature in many places reached record lows. As a result, the whole society's electricity load and difficulty in power supply soared. As the "prerequisite" for electricity and heat supply, coal supply became crucial.

The company coordinated to supplement the three-party contract involved in the railway transport, worked hard to gain support for transportation capacity from the railway head office, strengthened internal coordination of coal, electricity, port and shipping, and solved the difficulties of coal supply guarantee in time. In the fast loading station of Lindong Mine, a subsidiary of Huaneng Coal Industry Co., Ltd., with the extremely cold weather of -40 °C, front-line employees strove to complete each work at the earliest time from the entry of wagon to the station, vehicle checking, cleaning, winch pulling to releasing of coal into the coal bunker, and fully compressed coal transportation time. With the silent sacrifice of our "coal transporters", we were able to provide sufficient "rations" for the "fight" of the blizzard, ensured normal power generation and heat supply, and sent light and warmth to thousands of households through our practical actions.

In January 2018, Huaneng Coal Industry Co., Ltd. supplied 2,902,200 tons of coal to Huaneng's power plants, a year-on-year increase of 589,300 tons, up 39.26%, and the industrial synergy rate of 67.15%, up 17.16% year-on-year. Under the premise of sufficient supply of coal, total power generation of Huaneng Group reached 65.894 TWh in January 2018, a year-on-year increase of 24.3%; the total heat supply reached 67.68 million GJ, an increase of 20.3% over the same period of last year, and the area of direct network supply to household exceeded 248 million square meters.



Jingmen Thermal Power Plant Guarantees Power Supply



Changxing Power Plant Mobilizes all Employees for Snow Sweeping and Deicing at the Pier

January 2018
The total power generation grew by

24.3

%

January 2018
The total heat supply grew by

20.3

%

Optimize Industrial Layout



① Electricity

The company adheres to the essential responsibility of ensuring power supply, and focuses on the development of the power industry. In 2018, our domestic cumulative power generation reached 702.6 TWh, an increase of 8.2% year-on-year; wholly-owned and controlled power plants installed capacity at home and abroad reached 176.57 GW, an increase of 2.73% year-on-year. In 2018, our merchant power was 349.4 TWh, accounting for 51.6% of the total, an increase of 8.4 percentage points year-on-year. Comprehensive, coal-fired, hydropower, wind power utilization hours were all leading in the industry.



② Coal

In 2018, our coal output reached 70.86 million tons, a decrease of 200,000 tons year-on-year. The profit of coal industry reached 1.501 billion yuan, a year-on-year decrease of 189 million yuan. We actively strived for national policy support, obtained a capacity replacement index of 5.6175 million tons/year, saved about 670 million yuan of funds. We were approved of increasing high-quality production capacity 4.9 million tons/year, creating a marginal profit of about 500 million yuan.

While ensuring the improvement of internal efficiency, the company's coal industry also actively supports the company's main power sector. In 2018, the coal industry completed an internal coal supply of 47.91 million tons, an increase of 1.5151 million tons year-on-year, accounting for 67.61% of the total coal production, and the coal-electricity synergy rate increased by 2.4 percentage points year-on-year.



④ Science and Technology

The company implements in-depth innovation-driven development strategy, strengthens scientific and technological research, scientific and technological project management, and research and experimental capacity building, and further promotes the industrialization of science and technology. In 2018, the company's technology industry developed steadily, with a total operating income of 2.588 billion yuan and a profit of 500 million yuan.

The company strengthened the top-level design of science and technology work, revised the Measures for the Management of Science and Technology Projects, issued the Detailed Rules for the Implementation of Post-evaluation of Science and Technology Projects, and carried out the collection and evaluation of the Catalogue of Advanced Technology Promotion and Application of 2018 to effectively improve the quality and efficiency of scientific research project management.



⑤ Finance

Facing the severe business situation and complex market environment, Huaneng's financial industry took the initiative to respond scientifically to various difficult challenges, implemented the Work Plan for Preventing and Resolving Financial Risks, and Three-Year Action Plan for Lowering Leverage, Reducing Debts and Preventing Risks, realized the risk control, and financial industry ran smoothly. In 2018, the financial industry achieved consolidated operating income of 13.634 billion Yuan, consolidated profit of 6.638 billion Yuan, EVA 2.409 billion yuan, and the total managed assets reached 1,385.5 billion yuan. At the same time, the company's asset-liability ratio remained the lowest in the same industry, down by 2 percentage points.



③ Transportation

The synergy effect of the port on the main sector was further enhanced, and the coal supply for Huaneng increased by 72.2% year-on-year. In 2018, the company made every effort to build the Caofeidian North Seaborne Coal Port. The port completed the annual coal transfer volume of 22.64 million tons, among which, 12.49 million tons was transferred from system, and the total volume arrived in port was 24.09 million tons, far higher than the operation level of the initial operation year of other coal ports in the Caofeidian area, thus making Caofeidian Port an important strategic fulcrum of the company's fuel supply chain.

The company's shipping industry has always been taking service to main business of power industry as its aim, continually optimizing its capacity arrangement, and continuously improving the key indicators such as sailing rate and load capacity utilization. In 2018, the company's four shipping companies completed a total of 83.01 million tons of freight, an increase of 3.6% year-on-year, of which, the internal transportation volume was 53.21 million tons, an increase of 4.4% year-on-year, accounting for 67.6% of the total seaborne coal produced by the company, accounting for 64.1% of the total transportation volume of the four shipping companies.

Improve Development Quality

Asset Preservation and Appreciation

In 2018, the company's operating performance continued to improve, operating income reached 278.6 billion yuan, an increase of 6.9% year-on-year; profit reached 14.4 billion yuan, an increase of 21.0% year-on-year, and all sectors achieved profits.

The company takes the preservation and appreciation of state-owned assets as our responsibility, reduces production costs, improves marketing results, and significantly improves economic efficiency. In 2018, electricity production costs per kWh decreased by 6.9% year-on-year, the efficiency per MW optimized by 9% year-on-year, and the procurement cost was 9.1 billion yuan less than the estimate. At the same time, power generation growth rate exceeded the installed capacity growth rate by 5.5 percentage points, market trading share exceeded capacity share by 2.2 percentage points, thus increased profit 10.5 billion yuan collectively.

Case: Great Wall Securities Successfully Listed

In October 2018, the company's subsidiary Great Wall Securities Co., Ltd. was listed on the SMEs board of the Shenzhen Stock Exchange. Great Wall Securities was the first listed company of Huaneng financial industry. The IPO issued about 310 million shares, with an issue price of 6.31 yuan per share, and raised a total of 1.958 billion yuan. After deducting the issuance expenses, the funds raised through the listing was all used to supplement the capital and develop the main business. As a result, the company's capital strength was further enhanced, thereby injecting new momentum into the future development.



Great Wall Securities Listed on the Market

Deepen the Reform of SOEs

In 2018, the first board of directors of the company was formally established, and the legal status of the Party organization in the corporate governance structure was clearly defined and implemented. The company focused on improving the management work level, carried out the application and selection of management innovation results, and selected 30 outstanding achievements, and 2 achievements won the national second prize.

The company comprehensively deepened reform, actively implemented the requirements of "Double-Hundred Actions for Reform of SOEs", formulated the "Double-Hundred Actions' Promotion Work Plan for the Reform of SOEs", and 3 work units were included in the comprehensive reform pilot of the "Double Hundred Enterprises" by SASAC.

The company further advanced the supply-side structural reform, pushed to solve the suspended and delayed coal-fired power plant projects in 2017, phased out and shut down 4 coal-fired power units of 118 MW. Meanwhile, the company also reduced a total of 115 corporate legal persons, fully completed "water, power, heat supply, and property management", separation and handover of municipal facilities, and educational and medical institutional reform, and achieved the goal of "handling 20 zombie companies and enterprise in difficulties" in three years, disposal of non-performing assets of RMB 12 billion yuan. 9 electricity sales companies achieved independent operation.

Support Power Reform

In view of the new situation and new requirements of power market reform, closely focusing on the marketing management "1+N system framework", the company further strengthened the system construction, and the management became more standardized. In 2018, the company had 20 regional subsidiaries with leading base power hours compare to other companies surveyed, and realized the increase of base power generation plan by 120-1000 hours, and the annual addable base power increased by about 19.7 TWh. At the same time, the company actively participated in the electricity trading market in the region, and achieved annual power share exceeding capacity share by 2.2% percentage points.

Build Huaneng According to the Rule of Law

The Party group formulated the guidance to deepen the construction of Huaneng Group according to the rule of law, comprehensively strengthened the leadership of the Party committee (Party group) on the work of the rule of law, and comprehensively implemented the responsibility on the main persons-in-charge, the management personnel at all levels, and all employees of the enterprise, comprehensively realized the rule of law in five aspects, namely, governance, decision-making, operation, supervision, and protection of rights and interests, and promoted the construction of the rule of law with high quality.

Integrity and Compliance Management

In carrying out various reform tasks and development work, the company strengthened pre-existing legal research and validation, strictly abode by relevant laws and regulations in the process, and always adhered to steady advancement in compliance with law, performed decision-making approval procedures, strictly prevented the loss of state-owned assets, and at the same time maintained the legal rights of employees and other stakeholders according to law.

The company further strengthened the construction of major risk management and internal control systems, prepared the "2018 Comprehensive Risk Management Report" and the "2017 Internal Control Evaluation Report", and actively implemented the various risk management and control measures and internal control defect rectification work. The standards for the internal control system of the headquarters and related industry sectors were revised, and the internal control system standards of the overseas sector were added to form a "1+5" internal control system framework for the headquarters together with thermal power, hydropower, new energy and coal sectors.

The company further improved the internal audit work system and mechanism, explored the construction of the general auditor system, increased internal audit supervision, and comprehensively improved the internal audit work. In 2018, the company implemented a total of 1,226 internal audit projects such as economic responsibility audit, project investment audit and other internal audit projects.

Focus on Improving Quality and Efficiency

The company actively implemented the requirements in 2018 of SASAC to improve quality and efficiency, developed an overall plan for improving quality and efficiency, and formed a "1 + 5" scheme system to improve quality and efficiency together with the five schemes, namely, EVA, coal-fired power industry, reducing losses, increasing profits attributable to the parent company, and lowering leverage and reducing debts. The company continued to track the completion of tasks of improvements of quality and efficiency, and organized special work meetings to summarize experience and achievements, analyze problems, study measures, and strengthen process management.

Year-on-year profits increased by

21.0
%

Production cost per kWh decreased by

6.9
%

The efficiency per MW optimized by

9
%

Deepen Scientific and Technological Innovation

Innovation-driven Development

The company implements innovation-driven development strategy, continuously deepens pilot program for scientific and technological innovation, stimulates innovation potential of scientific researchers, and further accelerates knowledge transfer and dividend incentive pilot program. In 2018, the company set up 52 new science and technology projects, achieved 2 national key R&D projects gaining support from the National Science and Technology Funds, organized and completed the acceptance of 3 national science and technology projects and 15 research topics, and actively participated in the preparation of the "2030 - Clean and Efficient Use of Coal" national major project implementation program.

Major Technical Breakthroughs

The company attaches great importance to tackling major technological difficulties and problems, and has made major breakthroughs in cutting-edge technology research and development. A number of new technologies have been demonstrated and applied, such as integrated energy-saving and flexibility retrofit, wastewater zero discharge, and intelligent control of power plants etc. In 2018, the company's scientific and technological achievements made great progress, winning 1 national technical invention award, 20 provincial and ministerial level scientific and technological progress awards, and authorized 648 patents, including 163 invention patents, and hosted the compilation of 18 technical standards, of which, 6 was national standards.

- Jinghong Hydropower Station hydraulic ship-lifting technology won the second prize of national technology invention
- Shidaowan High-Temperature Gas-Cooled Reactor Demonstration Project fully entered the island equipment system installation and debugging stage
- IGCC Demonstration Power Station created world record for 166 days of maximum continuous running time
- Nuozhadu Hydropower Station won the Zhan Tianyou Award, the highest honor of scientific and technological innovation in China's civil engineering field
- The IGCC-based pre-combustion carbon dioxide capture technology won the first prize of China Electric Power Science and Technology Progress Award
- The "Denitration Catalyst Regeneration and Wastewater Treatment" project won the first prize of outstanding achievements in chemical industry technology innovation in the power industry.



Jinghong Hydropower Station Panorama

Scientific Research Platform Construction

The company has carried out in-depth innovation platform construction and organized the promotion of 6 company-level laboratory construction projects such as "Water Treatment and Water Saving Technology Laboratory". By the end of 2018, the company had a scientific and technological research and development system with 7 national key laboratories (R&D centers), 2 research bases and several company-level laboratories.

- "Coal-Based Clean Energy State Key Laboratory" passed the assessment organized by the Ministry of Science and Technology
- Some laboratories of "Xi'an Yanliang Scientific Research and Industrial Base" were successively put into use.
- The high-temperature nickel-based new materials independently researched and developed by the company were verified in the "National 700 °C Ultra-Supercritical Power Generation Technology Key Component Verification Test Platform". The platform reached the internationally advanced level and won the second prize of China Electric Power Science and Technology Progress Award.

Encourage Employee Innovation

The company actively responds to the country's "mass entrepreneurship and innovation" development strategy, and deepens the company's "double innovation" work. In 2018, the company deepened the employee innovation work, completed the "Huaneng Space" platform development and construction, and incorporated the results of the "double-innovation" work into the scientific and technological innovation appraisal system.

- In August 2018, Wei Shirang was awarded the "2018 Gu Yuxiu Electrical Engineering Award" in Portland, USA, becoming the first technical personnel in the power generation field to receive this honor since the establishment of the award.
- The first employee technology innovation competition was held, creating an atmosphere of "Mass Innovation", thus stimulating the creative potential and vitality of employees.
- We launched the second batch of grassroots enterprise technology innovation studio identification work, and 20 outstanding technical innovation studios were recognized, including "He Shengjie Technology Innovation Studio" among others.
- We carried out the selection and evaluation of employees' technological innovation achievements, a total of 322 innovation achievements were collected, and 143 achievements were awarded the company's staff technical innovation excellence award. Among them, 36 achievements were awarded the National Power Worker Technical Achievement Award by China Electricity Council, and 22 were rated as outstanding staff technology innovation achievements of the National Energy Chemical Geological System.

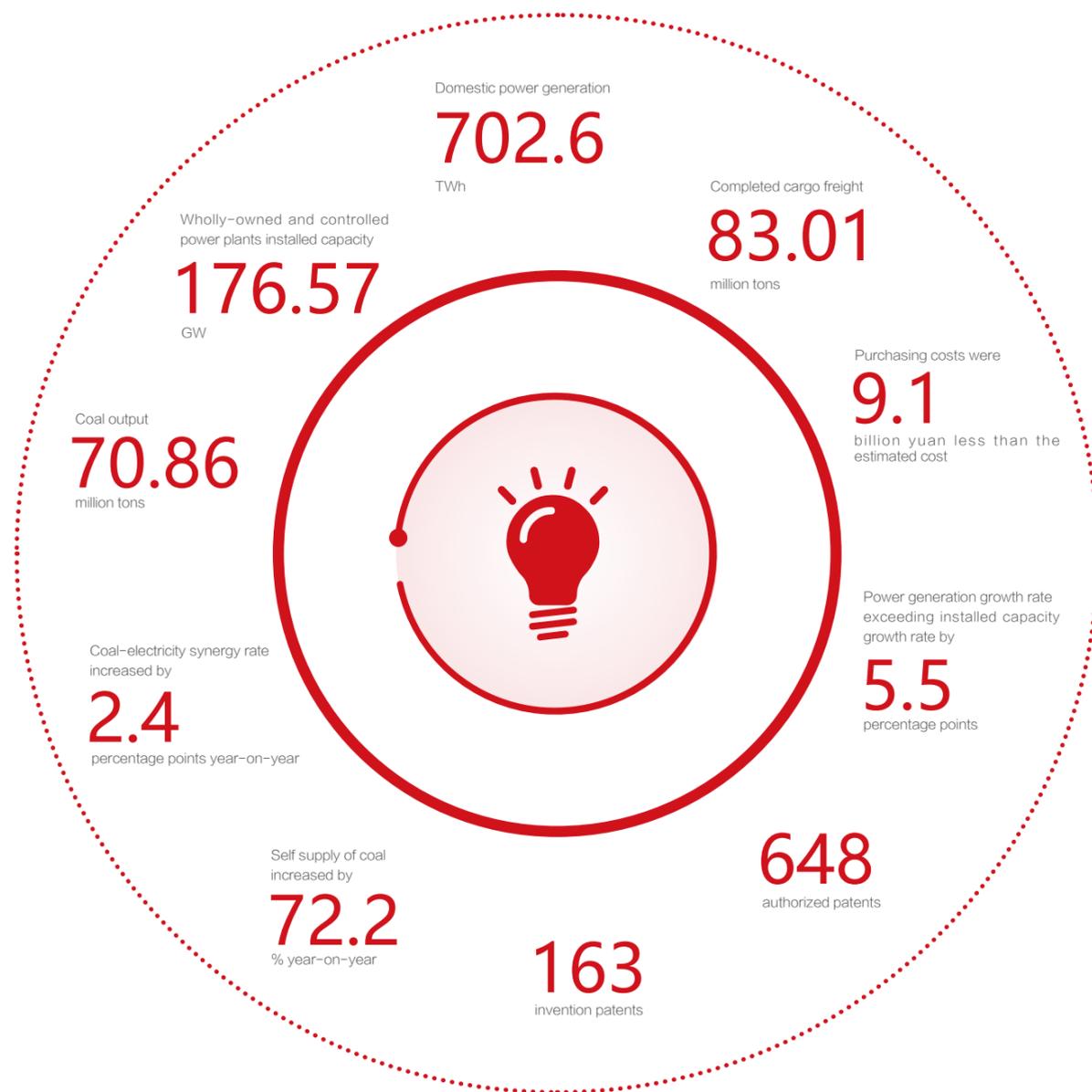
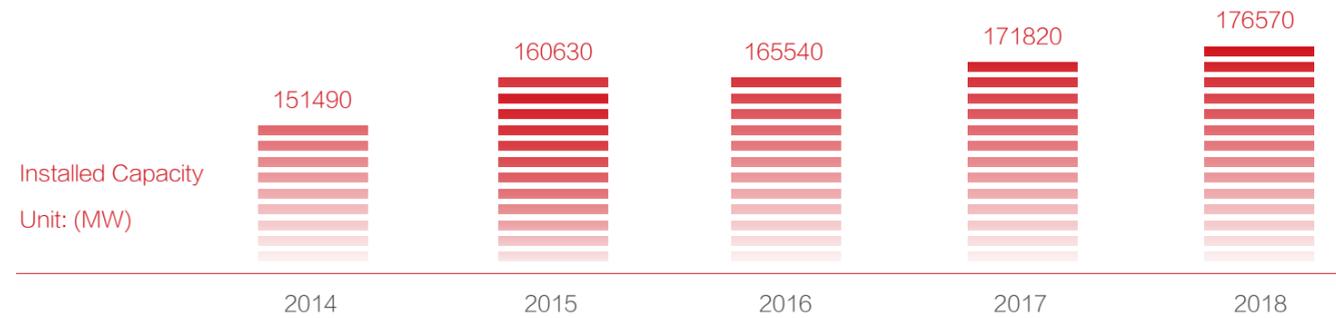


Shidaowan Nuclear Power Base Planning Graph



IGCC Demonstration Power Station

Data Documentary · Sharing Reform and Innovation



Comments by All Parties · On Reform and Innovation

"Huaneng conscientiously implements the basic strategy of rule of law, and solidly promotes the construction of the "rule of law" in accordance with the requirements of SASAC. The main responsible person of the company earnestly fulfilled the duties of the first responsible person in the construction of the rule of law. The company's works on the rule of law has achieved remarkable results, such as unified leadership of the Party group, the governance structure was optimized, legal operation management complied, the legal research was deepened, and the team building continued to strengthen, and remarkable progress in the popularization of law was made".

—Wu Jianghong, Head of the Third Investigation and Inspection Team of SASAC

"The major shareholders of Great Wall Securities are China Huaneng Group Co., Ltd., Shenzhen New Jiangnan Investment Co., Ltd., China Nuclear Industry Corporation, etc. In the development plan of Huaneng Group, one of the important measures is to implement the financial holding strategy. Huaneng Group's financial holding strategy and the good industry background and industrial advantages of other shareholders will provide strong support for the development of Great Wall Securities. "

—Wen Jicong, Economic Daily Director Reporter

"Huaneng is an explorer of China's power reform, a flag in the power field, and it has made an important contribution to ensuring the safe and stable supply of electricity in China, promoting the clean development of power, leading the advancement of power science and technology, and opening up China's power sector go global.

—Zhang Jianhua, Secretary of the CPC Committee and Director of the National Energy Administration

"The innovative development of Huaneng's business has led the technological advancement of the domestic power equipment manufacturing industry including Dongfang Electric Corporation."

—Zou Lei, Chairman and Party Secretary of Dongfang Electric Corporation

"Huaneng Group has undertaken the task delivered by the state to build a high-temperature gas-cooled reactor demonstration project, which is a result of promoting the application of industry-university-research, and the achievements are worthy of recognition".

—Han Yingduo, Academician of China Academy of Engineering and an Expert of Power System and Automation



Ecological Civilization Help Green Sustainability

The Party's Call: Lucid Waters and Lush Mountains are Invaluable Assets

The 19th CPC National Congress pointed out: "Building an ecological civilization is a millennium plan for the sustainable development of the Chinese nation. It is necessary to establish and practice the concept that lucid waters and lush mountains are invaluable assets, and adhere to the basic national policy of conserving resources and protecting the environment, treat the ecological environment like life, coordinate the management of mountains, rivers, forest, land, lakes and grassland system, implement the most stringent ecological environmental protection system, form a green development mode and lifestyle, and firmly follow the path of civilized development of production development, rich life and good ecology, and build a beautiful China, create a good production and living environment for the people and contribute to global ecological security."

Huaneng's Action: Set an Example of Ecological Civilization

Improve Environmental Management: The company issued the Measures for Implementation of Pollution Prevention and Control (2018 – 2020).

Adjust Energy Structure: The company continued to develop clean thermal power projects, and 5 projects including Xining Thermal Power Plant won the National Quality Engineering Award.

Speed Up Pollution Prevention: Huaneng Shandong Laiwu Power Plant won the gold medal in the 2018 Asian Power Award Coal-fired Power Generation Project due to its low energy consumption, excellent indicators and good environmental protection.

Promote Environmental Awareness: The company comprehensively considers the requirements of power generation, flood control, soil and water conservation, aquaculture, tourism development, etc. to achieve harmonious integration of project development and ecological environment.

Improve Environmental Management	30
Adjust Energy Structure	30
Speed Up Pollution Prevention	32
Promote Environmental Awareness	34

Improve Environmental Management

In accordance with the national requirements to effectively combat pollution prevention and control and win the blue sky battle, the company issued the Measures for Implementation of Pollution Prevention and Control (2018–2020), fully deployed five major tasks of environmental protection, namely, ultra-low emission retrofit of coal-fired units, coal yard ash field treatment, wastewater treatment, "three simultaneous" for environmental protection of construction projects, and coal mine environmental protection treatment etc.

Focusing on the key tasks, the company organized and held a promotion meeting to combat pollution prevention and control, intensified work supervision and on-site inspections, strengthened responsibilities in the work of pollution prevention and control, formulated a responsibility investigation system, and provided organizational and institutional guarantees for the full promotion and comprehensive implementation of various tasks of pollution prevention and control.

Adjust Energy Structure



Wind Power

In 2018, 1090 MW of wind power was started construction and 800 MW was put into production.

- Dafeng Offshore Wind Power Station completed the first circuit 220 kV submarine cable laying task ahead of schedule
- Rudong H3 Offshore Wind Power Station started construction ahead of schedule which further consolidates the company's offshore wind power construction advantages
- Qixingling Wind Power Station actively pressurized and 8 fans was put into production in advance.



Hydropower

2018 was a harvest year for the company's hydropower projects. 4 GW were put into operation, which exceeded the task of production.

- Huangdeng Hydropower Station was put into operation and successfully built the world's highest RCC gravity dam
- Dahuaqiao Hydropower Station was put into operation smoothly, and the vibration swing of the unit operation was the best for the same type of units in China
- Wunonglong Hydropower Station and Lidi Hydropower Station successfully realized the lower gate water storage and unit commissioning
- All the hydropower stations in the upper reaches of the Lancang River realized power external delivery, and the transmission power reached 12.5 TWh.



Gas Power Generation

In 2018, the company selected and optimized the layout of gas power generation projects, and organized five gas turbine projects to launch the first batch of National Gas Turbine Innovation Development Demonstration Project application work, namely, Dongguan Phase II, Suzhou Gas Turbine, Nanjing Gas Turbine, Guizhou Xixiu, Junan Yuhuan etc.



Photovoltaic

In 2018, 410 MW of photovoltaic power was started construction and 470 MW was put into production.

- Implement of the forward purchase agreement for the three photovoltaic power plant projects of Kangbao, Huolin and Yulin, all the three projects have completed industrial and commercial changes.
- The company's 11 "6 · 30" projects totaling 260 MW all received "6 · 30" electricity prices. Among them, five photovoltaic projects in Wuchuan, Bayannaer, Yimin, Yushe and Zhenlai are supporting poverty alleviation projects of local governments, which will continue to support local poverty alleviation.



Nuclear Power

In 2018, the company fully promoted the construction of the national major science and technology special high-temperature gas-cooled reactor demonstration project, and vigorously advanced the development of Hainan Changjiang Nuclear Power Phase II Project. The nuclear power industry entered a new stage of breakthrough development.

- The Shidaowan High-temperature Gas-cooled Reactor Demonstration Project fully entered the installation and debugging phase of the nuclear island equipment system, successfully completing 7 annual project objectives.
- Joining Hainan Provincial Government and China National Nuclear Corporation, we submitted a proposal to Hainan Changjiang Nuclear Power Phase II Project to the National Energy Administration, and held an expert demonstration meeting on the spot.
- The "Santong" (3-Utility Accesses) engineering outside the Xiapu Nuclear Power Project completed the water supply, and the power supply project completed the installation and debugging of the substation.



Biomass

In 2018, the company actively promoted the development of biomass and waste-to-energy projects in an orderly manner, the preliminary work of biomass power generation projects, such as the Shandong Jiyang Biomass Cogeneration and Sishui Biomass Cogeneration etc., and Nanjing Waste-to-energy Projects etc. were progressing smoothly.



Clean Thermal Power

In 2018, the company continued to develop clean thermal power projects, and 5 projects including Xining Thermal Power Plant won the National Quality Engineering Award.

- Ningxia Daba No. 7 unit was put into operation. As the first 600 MW class thermal power unit put into operation with steel structure indirect air-cooling tower, Ningxia Daba No. 7 unit has the advantages of low cost, good seismic performance and outstanding environmental protection.
- Yantai Bajiao Unit 1 passed the 168-hour full-load trial operation. The unit parameters and heating capacity had been the highest among the 600 MW units in China, and the indicators had been among the best in the same type of units nationwide.



Yuhuan Power Plant



Wunonglong Hydropower Station



Shanwei Wind Farm



Haikou Power Plant Intelligent Photovoltaic Power Generation Expansion Project

Speed up Pollution Prevention

Save Resources and Energy

The company comprehensively deployed energy conservation and consumption reduction work, further improved the three-level management system, strengthened the construction of energy conservation and consumption reduction system, improved the level of refined management of energy conservation and consumption reduction, and focused on the optimization of energy consumption indicators and benchmarking and the unit's sub-indicator compliance management as the starting point, carry out in-depth energy conservation and consumption reduction work.

In 2018, the company's specific coal consumption for power supply was 298.72 g/kWh, a year-on-year decrease of 1.39 g/kWh, and the plant power consumption rate was 3.97%, a year-on-year decrease of 0.04 percentage point. Comprehensive, coal-fired, gas turbine and 8 main models of power supply coal consumption maintained the best in the industry.

In the 2017 National Thermal Power Plant Energy Efficiency Level Benchmark Competition organized by China Electricity Council, a total of 69 units were rewarded, leading in the industry in terms of the number of awards. Among them, 7 units including Laiwu No.7 and Anyuan No.2 received the title of the best unit for power supply coal consumption, accounting for 33.33% of the total number of awards in this category; 8 units including Sutong No.1 and Weihai No.6 obtained the title of the best units in terms of the plant power consumption rate, accounting for 36.36% of the total number of awards in this category.

In the 2018 Power Efficiency Level Benchmark Competition of the power industry organized by SASAC, 5 units, including Laiwu No.7 and Weihai No.6 etc., were respectively awarded the title of the best power supply coal consumption unit of the benchmarking machine; 8 units, including Sutong No.1, Weihai No.6 etc., were respectively awarded the title of units of the best plant power consumption rate of the benchmarking units, and the number of awards was leading in the industry.

At the 2018 Asian Power Awards Ceremony, which is known as the "Oscar Award" in the Asian power industry, two units of 1.03 GW secondary reheat units of Huaneng Shandong Laiwu Power Plant won the gold medal in the coal-fired power generation projects with their high efficiency, low energy consumption, excellent indicators, good environmental protection and high degree of automation. This is the only thermal power project in China that won the award in 2018.



Shandong Laiwu Power Plant

Reduce Pollution Emissions

The company deepened the refined management of operation and maintenance of environmental protection facilities, strengthened the real-time supervision and control of pollutant discharge, and successfully completed the air quality assurance tasks for the important time periods, such as the National People's Congress (NPC) and Chinese People's Political Consultative Conference (CPPCC), Shanghai Cooperation Organization (SCO) Qingdao Summit, China International Import Expo in Shanghai etc. In 2018, the company actively promoted the upgrading and retrofit of environmental protection facilities. A total of 281 coal-fired units of 112 GW achieved ultra-low emissions, with a proportion of 94.7%, successfully completing the annual and national "13th Five-Year" ultra-low emission reconstruction tasks. All of the 112 operating power plants completed the sewage discharge permit application in accordance with the designated time limit. In 2018, emission performance of the three kinds of pollutants, namely, sulfur dioxide, nitrogen oxides and dust, were 0.074g/kWh, 0.146g/kWh, and 0.012g/kWh respectively, down by 26.0%, 11.0%, and 33.3% respectively year-on-year, continually maintaining a leading position in the industry.

In 2018, the company put forward the requirement of "both leading in environmental protection work and environmental protection standards". On the basis of comprehensive survey and troubleshooting, the company carried out systematic pollution prevention and control work on wastewater and solid waste treatment.



Haimen Power Plant Ultra-low Emission Retrofit Site



Yingkou Thermal Power Plant Ultra-low Emission Retrofit Site

Enterprise Independent Contribution

The company continued to strengthen carbon emission management, organized and participated in power industry carbon emission quota allocation policy research and trial calculation, completed enterprise historical carbon emission accounting and verification as required, built carbon emission data management and statistical analysis platform. We actively participated in carbon trading pilot work, all of the 13 key domestic emission enterprises completed their performance on schedule.

Specific coal consumption for power supply was

298.72

g/kWh

Reduced by

1.39

g/kWh year-on-year

The plant power consumption rate was

3.97

%

Reduced by

0.04

percentage point year-on-year

Promote Environmental Awareness

Implement Green Office

Through a series of green office measures, the company guides employees to start from small things, reduce energy consumption in daily life and enhance environmental awareness.

- Strictly control air conditioning temperature, and promote the use of energy-saving electrical appliances
- Standardize the use of public vehicles, strictly control the purchase of official vehicles and fuel consumption of vehicles
- Purchase, apply and use office supplies on demand, trade in old toner cartridge with new, and print on both sides of the paper.
- Substantially streamline meetings and briefings, comprehensively promote video conferencing, and reduce energy consumption caused by travel
- Promote informatization and paperless office work, reduce paper printing by establishing internal local area network

Ecological and Environmental Protection

In the construction of power stations, the company comprehensively considers the requirements of power generation, flood control, soil and water conservation, aquaculture, tourism development, etc., implements environmental protection measures for project construction, strives to protect the surrounding environment and biodiversity, and achieves harmonious integration of project development and ecological environment.

Case: Building Green Mines

Huaneng Yimin Open-pit Mine has always deeply rooted the concept of ecological environmental protection in the construction and development, and increased the investment in vegetation restoration and dust control year by year. Through measures such as dust control, soil improvement, vegetation restoration through plantation, and construction of garden-type mines etc., perfectly integrated the coal mines with the surrounding natural grassland landform. By the end of 2018, Yimin Open-pit Mine had completed a total green area of 10.22 million square meters, the mining area greening rate reached 98.6%, and the recovered humus soil was about 5.63 million cubic meters.



Yimin Open-pit Mine Vegetation Restoration Area

Yimin Open-pit Mine had completed a total green area of

10.22

million square meters

The greening rate of the mining area reached

98.6

%

Recycled humus soil about

5.63

million cubic meters

Case: Protecting the Ecological Diversity of the Lancang River

In the construction of Miaowei Hydropower Station, Huaneng Lancang River Hydropower Inc. attached great importance to ecological protection. For the first time in the country, the company successfully achieved artificial breeding through the fish breeding station, and released the rare fish species percocypris pingi retrodorslis, schizothorax lissolabiatius to Lancang River. First time ever, the company used the funds of the hydropower station for purchasing, and dismantled the branch hydropower station in the reservoir area and restored the natural river channel, established a fish habitat protection zone, thereby protecting the diversity of the aquatic ecosystem of the Lancang River.



Miaowei Hydropower Station

Spread the Environmental Protection Concept

The company strives to strengthen the publication and implementation of the concept of energy conservation and environmental protection, cultivate employees' awareness on ecological protection, advocate conservation and low-carbon lifestyle, actively organize employees to participate in environmental protection public welfare actions, actively build a platform for communication of external stakeholders of the company, promote green environmental protection concepts, and better respond to relevant parties' demands.

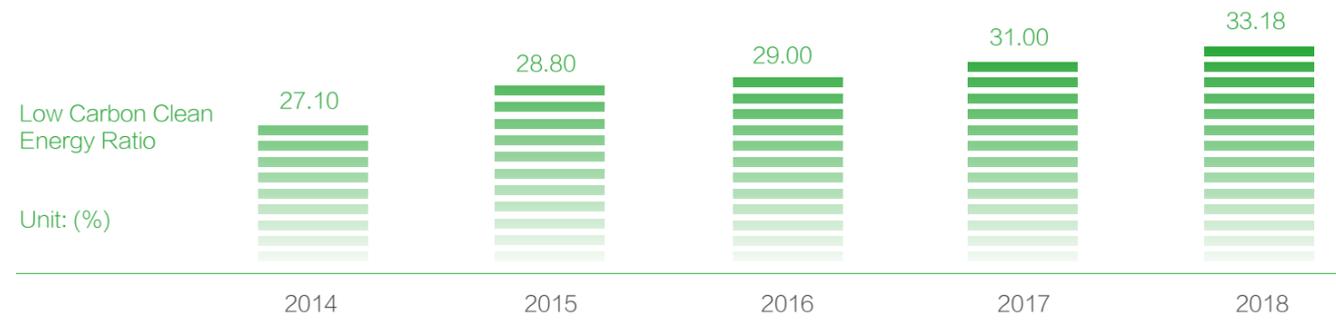
Case: Carry out Environmental Protection Publicity

In March 2018, 25 young volunteers from Huaneng Dongfang Power Plant launched a "the month of Learning from Lei Feng" environmental publicity campaign in a local primary school. Volunteers explained the power knowledge to the students, introduced the advanced energy conservation and environmental protection equipment of modern power plants and the achievements on environmental protection of the power plant in recent years, and organized the students to participate in "Lucid Waters and Lush Mountains Are Invaluable Assets, Protecting the Environment, Start with Me" signature commitment activities, distributed environmentally-friendly handbags printed with Huaneng Group's "three-color culture" to students to enhance their environmental protection awareness.



Dongfang Power Plant "the Month of Learning from Lei Feng" Environmental Protection Publicity Campaign

Data Documentary · Sharing Ecological Civilization



Comments by All Parties · On Ecological Civilization

"The funds raised after the listing of Huaneng Lancang River Hydropower Inc. will be mainly used for the construction of Miaowei Hydropower Station, Wunonglong Hydropower Station and Lidi Hydropower Station. After completion of the three hydropower stations, they will not only be able to drive local economic development, but also provide adequate cleaning power for 'West to East' power transmission project and 'Sending Yunnan Electricity to Outside', thereby laying a solid foundation for the adjustment of China's energy structure."

— Yang Kun, Party Secretary and Executive Vice Chairman of China Electricity Council

"Huaneng Yushe Power Generation Co., Ltd. invested 84 million yuan to launch an ultra-low emission retrofit project to control pollutant emissions from the source. At present, the tail flue gas purification treatment system can effectively reduce the emission of nitrogen oxides and dust in addition to reducing the sulfur dioxide emission value."

— Shanxi News Network

"Though Huaneng IGCC Power Station unit burns coal, its pollutant discharge reaches the level of natural gas power station, which greatly enhances China's international influence on issues of global climate change, and can effectively alleviate the pressure brought by the resource endowment of 'rich coal, less oil and lack of gas' in China, perfect the technology and carry out commercialization promotion, which is of practical significance for solving China's energy problems."

— China Electric Power News



Scan the QR code, and check CCTV's "News Network Broadcast" report on "Effect of Environmental Tax Promoting Green Development Manifest". The report mentioned that Huaneng Luohuang Power Plant implemented ultra-low emission retrofit in advance.



Scan the QR code, check CCTV's Zhaowen Tianxia (Morning News) report on China's First Coal Gasification Power Generation Demonstration Project Continues to Run 164 Days and Achieve a World Record



Open Cooperation Enable Value Sharing

The Party's Call: Promote the Building of a Community of Shared Future for Mankind

The 19th CPC National Congress pointed out: "China adheres to the basic national policy of opening to the outside world, insists on opening the country to engage in construction, actively promotes the 'Belt & Road' international cooperation, and strives to achieve policy coordination, connectivity of infrastructure, unimpeded trade, financial integration and closer people-to-people ties, build a new platform for international cooperation, and add new momentum for common development. Increase assistance to developing countries, especially the least developed countries (LDCs), and promote narrowing the gap between North and South. China supports the multilateral trading system, promotes the construction of free trade zones, and promotes the construction of an open world economy."

Huaneng's Action: Set the Example of Open Cooperation

Deeply Cultivate Overseas Markets: Huaneng Sahiwal Power Plant was awarded the "Outstanding Achievement Award" by Pakistan Prime Minister.

Drive Local Development: The Stung Treng Provincial Government of Cambodia issued a certificate of appreciation to Se San-II Hydropower Station, thanking the project for its great contribution to promoting the friendship between Cambodia and China.

Enhance Partnerships: The company formulated the "Work Plan for Supporting the Development of Xiong'an New Area" and the "Work Plan for Supporting Hainan's Comprehensive Deepening of Reform and Opening-Up".

Strengthen Responsible Procurement: In the benchmark of SOEs procurement organized by SASAC in 2018, the company ranked first in the power generation industry for the third consecutive year.

- Deeply Cultivate Overseas Markets -----40
- Drive Local Development-----42
- Enhance Partnerships -----44
- Strengthen Responsible Procurement-----45

Deeply Cultivate Overseas Markets

Strengthen Overseas Management

In 2018, the company set up Overseas Business Unit to coordinate the deployment of overseas business, strengthened research on top-level design and system optimization for international development, and formulated the Implementation Plan for Promoting Joint Construction of the 'Belt & Road' to Go Deeper and More Solid, and clarified the development goals and main measures for the new phase of the "Belt & Road" construction.

Promote Engineering Project Construction

The company actively promoted the joint construction of "Belt & Road" to go deeper and more solid. The power assets were distributed in developing countries along the "Belt & Road", such as Myanmar, Cambodia and Pakistan etc., with coal-fired power plants, natural gas power plants and hydropower stations as the mainstays, creating high quality power engineering. By the end of 2018, the company's accumulated overseas investment reached 41 billion yuan, and the installed capacity of controllable and participating management was 9.14 GW.

In 2018, Huaneng Sahiwal Power Plant, as a large-scale green environmentally friendly power plant of Pakistan, with the largest single capacity, the most advanced technology, the most optimal environmental protection indicators, the fastest construction speed, and the first to put into operation in the China-Pakistan Economic Corridor, received the "Outstanding Achievement Award" personally signed and presented by Pakistani Prime Minister. Previously, the Ministry of Energy of the Federal Government of Pakistan had already awarded twelve national honors to Huaneng Sahiwal Coal-fired Power Plant, including the "Engineering Design Gold Award", "The First Commercial Operation Project of the China-Pakistan Economic Corridor", "Supercritical Boiler Engineering Quality Gold Award", "Pakistan High Temperature Zone Concrete Maintenance First Prize for Technology Progress", "Structure of Bottom Door Opening of Coal Cars First Prize for Technology Progress" etc., and six colleagues from the plant were presented the "National Outstanding Contribution Award".

Se San-II Hydropower Station is a key project of the "Belt & Road" and energy construction in Cambodia. It is a "window project" for China Huaneng Group to actively adjust its structure and promote green development in Southeast Asia. The total installed capacity is 400 MW, accounting for nearly 20% of the total installed power capacity in Cambodia. The first unit was put into operation in December 2017. In 2018, the goal of "six units put into operation in one year" was achieved. 8 units were all put into operation within 11 months. The completion of the hydropower station is of great significance for accelerating Cambodia's economic and social development and responding to the "Belt & Road" Initiative.

Cinendang Hydropower Station is located in the middle and lower reaches of the Cinendang River in the southwest corner of North Sumatra, Indonesia, with a designed installed capacity of 100 MW. In 2018, the company signed a cooperation agreement with Pt. Nova Summit Energy to reach a preliminary intention for the joint development of the Cinendang Hydropower Station, and submitted the final application materials to PLN, the Indonesian State Power Corporation, striving to include the station in the Indonesian National Power Company 2018 - 2027 Power Development Plan.

Improve Project Security

In order to ensure the smooth development of internationalization, the company has continuously improved our level of international cooperation and foreign affairs management services. In 2018, a total of 221 batch-times, totaling 1,241 person-times of visiting delegations were received; 11 batch-times totaling 36 people were invited to come to China.

The company attaches great importance to the cultivation of internationalized talents, constantly improves the selection, training and use of internationalized talents mechanisms, and gradually builds an internationalized talent team with reasonable structure, high quality and familiarity with overseas project management. By the end of 2018, the company's number of permanent residents in projects and institutions overseas had reached more than 380 people.

The company attaches great importance to overseas public safety management, strengthens overseas security research and judgment, pays close attention to changes in overseas security situation, establishes a sound information collection research and judgment mechanism, and prepares the Safety Handbook to Pakistan and Safety Handbook to Myanmar to enhance the safety awareness and safety of overseas personnel.

Case: Overseas Security and Emergency Training

In September 2018, the company organized the second overseas safety and emergency training activities, focusing on the recent overseas security situation, overseas emergency prevention and response, and personal emergency response capabilities and other themes, through real-life case analysis, instructor demonstration, student participation, on-site emergency drills and other forms, 45 participants from headquarters departments and various subsidiaries accepted overseas safety education and training to further strengthen the safety awareness of overseas personnel and improve their risk response capabilities.



Overseas Security and Emergency Training in 2018

Carry out International Exchanges

The company adheres to the concept of "overseas business obeying the country's overall diplomacy" consciously, actively participates in major diplomatic activities, and builds a comprehensive, in-depth, wide-ranging communication platform, tells good stories about China to the outside world, establishes the image of Huaneng, and helps to enhance the reputation of the company's overseas brands.

- **Help Government Cooperation:** Participate in China - Central and Eastern Europe Energy Cooperation, China-Mexico Entrepreneur High-Level Working Group, Lancang River-Mekong River Cooperation Mechanism, Sino-German Economic Advisory Committee and other intergovernmental cooperation mechanisms.
- **Promote Business Cooperation:** Strengthen communication and exchange with GE, Siemens, EDF, State Grid, Three Gorges Group and other large-scale domestic and foreign enterprises, and promote pragmatic cooperation.
- **Participate in Diplomatic Activities:** Participate in the World Economic Forum Annual Meeting, BRICS Business Forum, Boao Forum for Asia, China-Africa Cooperation Forum, ASEAN Expo, China International Import Expo, and other activities.

The company's accumulated overseas investment reached

41

billion yuan

The controllable and management participatory installed capacity was

9.14

GW

Case: Actively Participate in China International Import Expo

The company actively participated in China International Import Expo (CIIEC) and established a specific procurement team, formulated the work plan, organized special meetings, and solidly promoted the follow-up work. During the Expo, the company held signing events and signed procurement agreements with 15 suppliers including Siemens, General Electric, SKF, Schaeffler, NSK and Aron, with a total amount of 15.477 billion yuan.



Contract-signing with Siemens

Drive Local Development

The construction of Se San-II Hydropower Station not only greatly alleviated the situation of Cambodia's national power shortage and dependence on imports, but also made great contributions to the local talents' training and living environment improvement, effectively promoted the rapid development of the regional economy, and drove the comprehensive development of Cambodia. The Stung Treng Provincial Government of Cambodia issued a certificate of appreciation to the hydropower station, thanking the project for its generous donation to the infrastructure construction of Stung Treng Province, promoting local environmental improvement, improving the living conditions of local immigrants, sponsoring the Red Cross and other social affairs, as well as the great contribution to promoting friendship between Cambodia and China.

Carry Out Public Welfare Assistance

During the construction and operation of Se San-II Hydropower Station, the company donated US\$225,000 to the Cambodian Red Cross Society. At the same time, we organized donation of materials, visited migrant schools, and invited teachers and students to visit the hydropower station and other activities to establish a multi-channel communication platform to participate in and support the construction of government departments and resettlement sites around the hydropower station to achieve harmonious development of hydropower, local economy and migrants.

Facilitate Talent Training

Se San-II Hydropower Station promoted "localization" management, formulated talent recruitment plan, Cambodian staff training plan, signed the mentoring agreement between Chinese and Cambodian employees, and already recruited 99 Cambodian citizens to engage in daily work during the operation period, such as hydropower station operation and maintenance, integrated management, and property logistics etc. During the peak construction period, the station provided the local people with more than 2,000 jobs, which drove the economic development of the project site and built enterprise-local community.



Chinese and Cambodian Employees Signing a Mentoring Agreement

Improve Living Environment

Se San-II Hydropower Station fully considers the interests of local migrants and actively raises the compensation standard. 840 households with 3,690 migrants have all moved in to safe and reliable new homes, and at the same time each household has obtained 5 hectares of cultivated land. Meanwhile, the company has built roads, schools, hospitals, police stations and temples for each migrant village, equipped with drainage systems, power grids, water wells and other infrastructure to build the migrant village into a demonstration model for Cambodian migration projects.



Se San-II Hydropower Station Migration Village

Enhance Partnerships

Support Local Construction

The company actively serves the national strategy and implements the decisions and visions of the CPC Central Committee on Xiong'an New Area and Hainan Free Trade Zone. We formulated the Work Plan Supporting Hainan's Comprehensive Deepening of Reform and Opening-up, docking with major projects in the energy field, signed strategic cooperation agreement with the Hainan Provincial Government, and increased cooperation with Hainan Province in the areas of economic construction, clean energy development, and poverty alleviation. We formulated Work Plan Supporting Xiong'an New Area Development, focusing on the development of four major sectors, namely, integrated energy services, technology research and development and industrialization, financial services, intelligence and information technology, as well as smart energy innovation service centers.

Build Cooperation Platform

The company takes "creating value together" as the starting point and the foothold, strengthens strategic cooperation with local governments, enterprises and associations, complements each others' strengths for coordinated and synergistic development, striving to achieve the value creation effect of "1+1 greater than 2".

- Signed a cooperation framework agreement with Shandong Province, Chengdu City, China Shipbuilding Industry Corporation (CSIC), Harbin Electric Corporation, China Everbright Group, Jiangsu Communications Holding Co., Ltd., and LG of South Korea.
- Cooperated with Nanjing Vistas Power Technology Co., Ltd. to establish an offshore wind power operation and maintenance joint venture company to dock with the early reserved offshore wind power projects of that company.
- Signed an investment cooperation framework agreement with Shitai County Government of Anhui Province to carry out the preliminary work of Shitai and Yuexi Pumped Storage Hydropower Stations.
- Signed a cooperation framework agreement with Chongqing Sanfeng Environmental Industrial Group Co., Ltd.(CSEG) and Shanghai Kangheng Environment Co., Ltd. respectively to start the bid preparation for the Nanjing Jiangbei Phase II Waste-to-energy PPP Project.
- Signed a strategic cooperation framework agreement with Beijing Gas Group and other companies to seek investment opportunities in related fields such as new energy vehicle charging, energy conservation, and energy storage etc.



The Company Signed a Strategic Cooperation Agreement with China Everbright Group

Strengthen Responsible Procurement

Optimize Procurement Management

The company organized and carried out revision on new procurement system, formed a procurement management system covering 7 major categories, namely, the basics, planning, procurement, materials, information systems, assessment, and supervision, including a total of 34 items, and carried out system publicity and implementation training for 47 regional associated companies, 367 grassroots enterprises and a total of 1312 people.

The company continued to deepen the rectification work on issues raised by central special inspection, national audit, special supervision inspection by SASAC, and internal inspection issues, adhered to problem-orientation, and effectively promoted the three-level linkage rectification.

Improve Procurement Quality

The company focused on strengthening supplier management, conducted an annual comprehensive evaluation towards 14,953 suppliers in the supplier database, and rendered suppliers with lower evaluation level suspension of trading, warning and rectification and other punishments. In addition, the company actively absorbed internal and external bid evaluation experts into the expert database, further improved the experts and profession refinement, refined the professional classification from three levels to four levels, and continuously improved the quality of bid evaluation.

Procurement Platform Construction

The company promoted the construction of procurement informatization, and deepened the application of e-commerce and material management.

The company vigorously promoted the whole-process "sunshine" procurement, and further increased the coverage of use of e-commerce platform, and the number of grassroots enterprises covered reached 498. In 2018, the cumulative number of traded online procurement projects on the platform was 158,369, and the total number of projects through the whole-process online purchase was 139,665, the whole-process online procurement rate reached 88.19%.

In terms of material management platform, the company continued to promote platform construction, strengthened function implementation and application, and basically realized the horizontal connection of materials and procurement management across the company and the vertical connection between enterprises at all levels.

Strengthen Procurement Benchmarks

The company continued to deepen the procurement benchmarking management, organized self-evaluation of the 2017 procurement benchmarking management work in accordance with SASAC procurement benchmarking requirements, approved and released the comprehensive procurement and material management indicators for 2018, organized subsidiaries at all levels to decompose the indicators to the grassroots enterprises, and refined the management of procurement indicators.

In 2018, the company completed a total purchase amount of 46.2 billion yuan, and the procurement saved 9.1 billion yuan compared with the estimated budget, with a capital saving rate of 16.49%. Among them, the centralized procurement rate was 99.71%, the online procurement rate was 99.09%, the public procurement rate was 99.12%, the electronic bidding rate was 99.99%, the suppliers' dynamic quantitative assessment rate was 99.62%, and the procurement quality control over the procurement amount rate was 100%, and all six indicators have achieved the "advanced level" standard. Among the internal management indicators, the company's open bidding rate was 100%, and the bidding procurement rate was 100%. In SOEs procurement benchmark organized by SASAC in 2018, the company ranked first in the power generation industry for the third consecutive year.

The cumulative number of trading of online procurement projects on the platform was

158369

The total number of whole process online procurement projects was

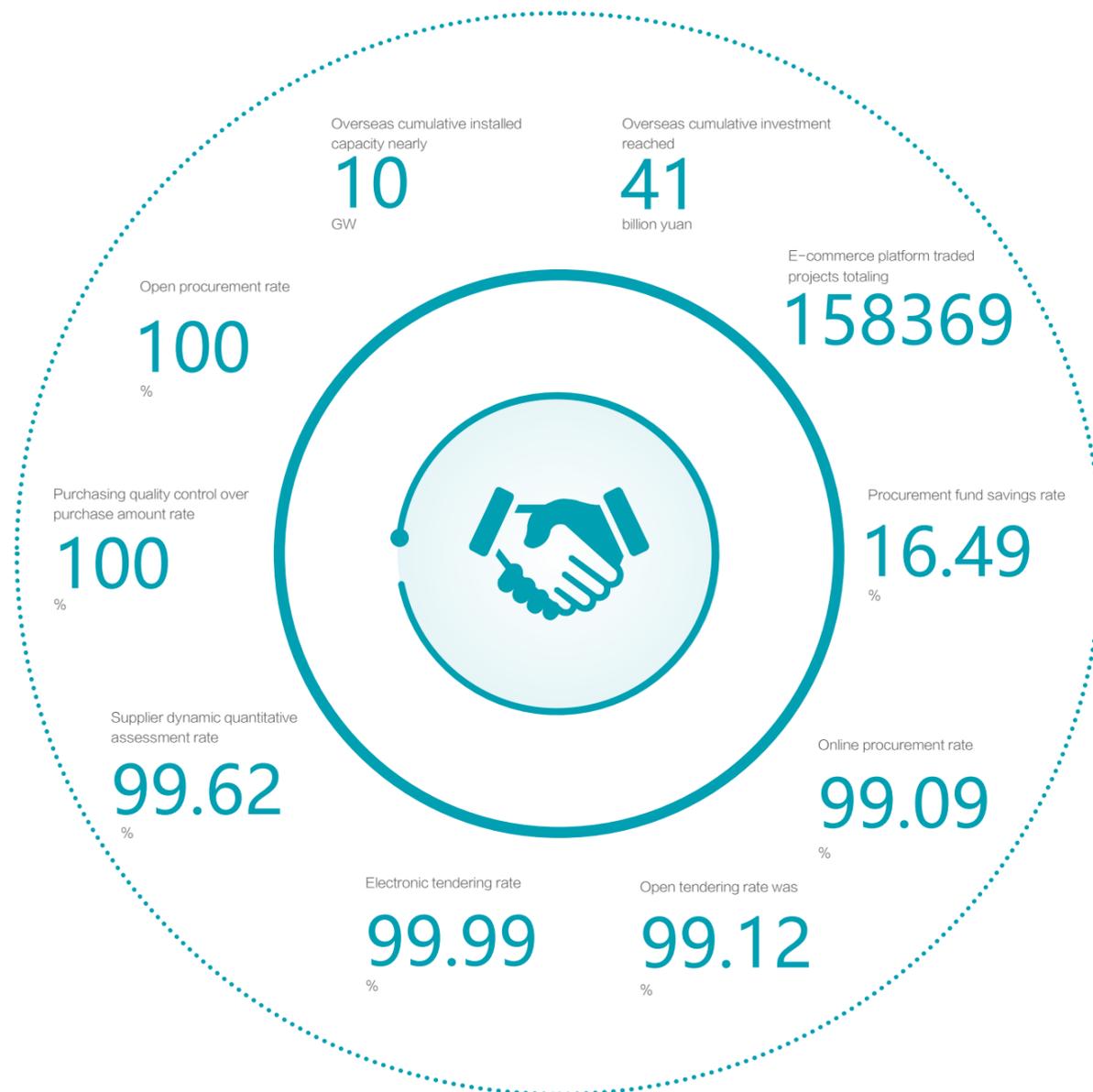
139665

The whole process online procurement rate was

88.19

%

Data Documentary · Sharing Openness and Cooperation



Comments by All Parties · On Openness and Cooperation

"Se San-II Hydropower Station is the largest hydropower project in Cambodia, allowing the Cambodian people to use safe, stable and clean power resources. The project development has brought tangible benefits to Cambodia, increased employment opportunities for our people, and guaranteed Cambodia's independence and security in power, which is of great significance for improving Cambodian people's livelihood and accelerating the country's economic development."
— Hun Sen, Prime Minister of the Kingdom of Cambodia

"Sahiwal Power Plant not only greatly alleviated the power shortage that Pakistan was currently facing, but also solved the labor employment of thousands of people and trained excellent qualified electric engineers, cultivated technical talents in severe shortage for the Pakistani people, and won the recognition and respect of the Pakistani people."
— Mansour, Chief Engineer of Pakistan Central Power Purchasing Bureau

"As a key enterprise and investment model in the "Belt & Road" energy construction field, Huaneng Lancang River Hydropower Inc. listing will also provide support for the "Belt & Road" construction, alleviating the drought in the downstream countries of the Greater Mekong Subregion and steadily promoting the development of hydropower resources in Southeast Asia."
— Peng Cheng, Secretary of the Party Committee and Vice President of the Hydropower and Water Resources Planning and Design General Institute

"Huaneng's leading culture and innovative ideas have driven the management and technology upgrading of Harbin Electric Corporation (HE). HE attaches great importance to cooperation with Huaneng, will increase research and development efforts, improve product and service quality, and fully support Huaneng's structural adjustment and technological transformation, jointly develop and optimize the domestic market and open up overseas markets to achieve mutual benefit and win-win results."
— Si Zefu, Chairman and Party Secretary of Harbin Electric Corporation



Scan the QR code, and check the People's Daily report titled "Se San-II Hydropower Station Undertaken by Huaneng Group Has Been Officially Put Into Operation - Providing Strong Support For Cambodia's Economic Development"



Scan the QR code, and check the CCTV's Zhaowen Tianxia (Morning News) report titled "Cambodia Se San-II Hydropower Station Holding Completion and Operation Ceremony"



Human Orientation Prosper the Country by Enabling Talents

The Party's Call: Employment is the Biggest Livelihood

The 19th CPC National Congress pointed out: "We must adhere to the employment priority strategy and active employment policy, achieve higher quality and better employment. We will carry out vocational skills training on a large scale, focus on solving structural employment conflicts, encourage entrepreneurship to drive employment, and eliminate disadvantages of institutional mechanisms that hinder labor and social mobility of talents, so that everyone has the opportunity to achieve their own development through hard work. Improve the consultation and coordination mechanism jointly engaged by the government, trade unions, and enterprises, and build a harmonious labor relationship."

Huaneng's Action: Set an Example of People-orientation

Ensure Safe Production: All 17 coal mines in the company's coal industry were appraised and awarded the title of 2016-2017 Super Safe and Efficient Mine (Open-pit).

Implement Employee Responsibility: The "Exploration and Practice of Internationalized Talent Team Training and Construction" of the company won the Top 10 "Outstanding Achievements in Internationalized Talents Training of the Power Industry" award by China Electricity Council.

Ensure Safe Production -----50

Implement Employee Responsibility -----53



Ensure Safe Production

Lay Foundation for Safety

Adhering to the concepts that "safety is efficiency, safety is the credibility, and safety is competitiveness", the company carried out solidly the "year for implementation of safety production responsibility system for all employees" activity, actively promoted the safety production responsibility system, institutional system, security system and prevention and control system construction, strengthened the implementation of safety production responsibility, consolidated the safety production base, the overall safety production situation for the whole year was generally stable, and no major accidents occurred.

In 2018, the company completed patrol inspection and evaluation of 4 batches totaling 32 power plants, and conducted on-site safety supervision inspection of the three self-managed overseas projects, namely, Cambodia Se San-II Hydropower Station, Myanmar Shweli-I Hydropower Station, and Pakistan Sahiwal Power Plant, notified problems found in a timely manner, strengthened follow-up inspection of rectification work, and promoted grassroots enterprises to implement the responsibility system for production safety.

Keep Raising the Alarm Bell

Event History:

In May 2018, workers Wu and Li from an outsourcing company of Hetaoyu (walnut valley) Coal Mine, which was an subsidiary of Qingyang Coal Power Co., Ltd., were responsible for erecting a temporary working platform on the bridge crane beam. In the meantime, Wu wanted to cross the beam to the other side of the bridge crane for operation. However, due to the lack of the length of the safety rope, Wu arbitrarily removed the safety rope to work and accidentally fell to the ground. The workers on-site immediately reported the situation to the leader and dialed Emergency Call 120. 5 minutes later, the project department arranged for the self-use vehicle to take Wu to the hospital, and transferred him to the ambulance on the way, and then sent to an local hospital of Ning County. Wu eventually died in the hospital.

Causes of the Accidents:

- Worker Wu's safety awareness was weak. In the process of erecting the working platform on the top of the bridge crane, the illegal operation of arbitrary removal of the safety rope was the direct cause of the incident.
- The implementation of the safety production responsibility system of the outsourcing company, on-site safety management, hidden danger troubleshooting and management, and employee safety training were not in place, which was an indirect cause of the incident.

Event Handling:

- Impose a fine of 1% of the total salary of 2017 on Qingyang Coal Power Co., Ltd., and impose a fine of 3% of the total salary of 2017 on the Hetaoyu Coal Mine.
- Impose different degrees of administrative sanctions and economic penalties to 17 relevant persons in charge of Qingyang Coal Power Co., Ltd. and Hetaoyu Coal Mine.
- Qingyang Coal Power Co., Ltd., was responsible for managing and supervising of relevant outsourcing companies.

Event Reflection:

- Strengthen the implementation of safety responsibilities, intensify the implementation of responsibility assessment, strengthen the traceability of process responsibility performance, and eliminate the blind spots of responsibility and blank management.
- Strengthen the safety management of outsourcing projects, implement the principal responsibility of outsourcing engineering safety management, and effectively incorporate the outsourcing units into the enterprise safety management system.
- Further strengthen the on-site dynamic management and control, implement the operation site daily hidden danger troubleshooting management responsibility, and ensure that the hidden dangers of problems are rectified in time.
- Continue to strengthen anti-"three violations" work, strengthen source management, improve the safety of equipment and work environment, and achieve "zero tolerance" for violations.
- Practically strengthen employee safety training, intensify training organization and management, and put the time and quality of safety training in the first place.

Improve Equipment Safety

The company pays great attention to the intrinsic safety management of equipment, strengthens routine inspection and comprehensive analysis of equipment, troubleshoots hidden dangers of equipment, and uses equipment maintenance and backup opportunities to rectify equipment. We continue to carry out the work of "reducing numbers of outage, controlling outage", implement key requirements for preventing electric power production accidents, and improve various pre-planning measures. In 2018, the company's (hydro, thermal power) equivalent availability coefficient was 94.21%, up by 0.02 percentage point year-on-year; the unplanned outage coefficient was 0.39%, down 0.35 percentage point, and the overall excellence rate of the units after overhaul maintenance increased by 1.7 percentages point year-on-year, with leading unit equivalent availability coefficient and coal machine reliability index in the industry.

- 59 power plants achieved uninterrupted operation throughout the year
- 7 units including Baiyanghe No. 6, Dalate No. 1, and Yueyang No. 4 achieved continuous operation throughout the year.
- Haikou No. 8, Dongfang No. 2, Dezhou No. 2, and Shang'an No. 6 units had been running continuously for more than 500 days.
- In the national wind and photovoltaic power station operation index benchmarking, 8 wind farms won the title of 5A-class wind power station, and 7 photovoltaic power stations won the title of 5A-class photovoltaic power station.
- 7 units, including Shangan No. 6, Shangdu No. 4 and Dezhou No. 2, entered respective ranking of units in the national electric power reliability index evaluation, accounting for 16% of the total.

In addition, the company actively develops new technologies and new techniques to enhance the intrinsic safety level of equipment. In view of the characteristics of wind power, photovoltaic, small hydropower equipment featuring being widely scattered in large areas with few operators, the company uses advanced communication means and information technology to achieve remote work permit ticketing and further improve the level of safety control.

Coal Industry Safety

The company firmly established the concept of safety development, continuously increased the management and control of safety of the coal industry, vigorously promoted the coal mine safety infrastructure construction, and focused on improving the level of mechanization, automation, informatization and intelligence of mines. The 17 coal mines of were all titled as the 2016-2017 high-level safety and high efficiency mines (open-pit), all passed the national standardization and acceptance, of which the first-class standardized mine accounted for 76%, and 3 projects including Chicheng Coal Mine and Xinzhuang Coal Mine won the "Sun Cup" award.



Enhance Safety Awareness

The company made full use of the safety production education platform, promoted the "all employees safety production education and training" for standardization and acceptance, and enhanced the safety awareness and skill level of the employees and outsourcers. We organized video exchange meetings on scaffolding, temporary power supply and work ticket specification management, as well as "constrained space operations such as underground wells" to prevent personal injury, carried out investigation and troubleshooting of safety hazards of grassroots units, formulated and implemented targeted preventive measures, achieving good preventive effects.

Case: The Company Conducted Various Forms of Safety Production Training

Huaneng Yimin Power Plant innovated safety training mode, built an experiential safety education center, enriched the form of education training to refrain from cramming and empty talks, adopted a three-dimensional safety education mode that combined sight, hearing and experience, thus establishing materialized safety education that could be implemented, felt, and flexibly-adopted. The power plant established two sets of multimedia education display facilities and seven sets of safety experience facilities, allowing employees to experience experiential safety training, greatly improving employees' safety skills and safety awareness, thereby providing a solid guarantee for enterprise safe production.



Huaneng Yimin Power Plant
Experiential Safety Education

Case: The Company Carried Out an Emergency Drill for Natural Gas Pipeline Leakage Disposal

In June 2018, Huaneng Chongqing Liangjiang Gas-fired Power Plant organized and conducted an emergency drill for gas pipeline leakage disposal. Chongqing Municipal Development and Reform Commission, Safety Supervision Bureau and other government departments and personnel of relevant units of the company observed the drill on site.

On the drill site, the natural gas pipeline was accidentally dug and cut off during the simulation of the third-party construction, causing a large amount of natural gas leakage. After receiving the alarm, the company immediately verified the leakage situation, started the natural gas leakage level I response, organized various rescue teams to rush to the scene and reported the danger as required. Under the orderly command of the field headquarters, the personnel at all levels had clear division of labor, responded quickly, coordinated their cooperation, dealt with the problem properly, successfully controlled the situation, and eventually eliminated the danger. Through this drill, employees further enhanced their awareness on prevention of safety production accident, improved their emergency response capabilities, and ensured production safety and stability.



Natural Gas Pipeline Leakage Disposal Emergency Drill

Implement Employee Responsibility



Protection of Rights and Interests of Employees

The company strictly abides by the Labor Law, Labor Contract Law and other laws and regulations, signs labor contracts with employees according to law, pays social insurance in strict accordance with regulations, protects the personal privacy of employees, and constantly improves the basic management of labor and employment. By the end of 2018, there were 135,329 employees in the company and the labor contract signing rate was 100%.

Improve Remuneration and Benefits

Continuously improve the remuneration management methods, strengthen the classification management of total wages, actively promote the salary system reform; pay wages in a timely manner, increase income reasonably; improve the enterprise annuity management system; further strengthen and standardize the employee welfare guarantee system; adhere to equal pay for equal work; give favourable payment to the front line and production team; social insurance coverage reaches 100%.

Ensure Labor Breaks

Depending on the number of years of work, employees are entitled to 5-15 days of paid leave; strict implement the provisions for maternity and lactation leave for women workers.

Implement Democratic Management

Deepen the institutionalization and standardization construction of the workers' union, and promote the standardized operation of the workers' union and the implementation of its powers. Study and formulate the "Administrative Measures on Workers' Union Patrol Inspection", and revise the "Measures for Implementation of Democratic Appraisal Leaders of Workers' Congress" to form the "1+6" system of the Workers' Union. Organize and hold the on-site exchange meeting on open and democratic management of factory affairs, promote and enhance the scientific level of democratic management.

Implement Equal Employment

Adhere to the employment policy of equality between men and women and equality among different ethnic minorities; protect the legitimate rights and interests of women workers and labor dispatch workers; improve the quality of work of graduate recruitment, and clarify the conditions and procedures for enterprises to accept retired soldiers.

Special Talent Care

Accelerate the training of internationalized talents, formulate, print and issue the "Opinions on Accelerating the Selection and Cultivation of Internationalized Talents", promote the internationalized talent team's remuneration system construction, further mobilize the work enthusiasm of personnel stationed overseas, provide multi-faceted protection for personnel stationed overseas; sort out the situation of cadres for poverty alleviation within the system, put forward the management opinions on the treatment of resident cadres in the village for poverty alleviation, clarify the living allowance standards for resident cadres in the village for poverty alleviation.

Focus on Physical and Mental Health

Organize regular health checkups and special types of medical examinations for employees, focusing on "sending medical services" to the grassroots level and front of the project, and inviting medical experts to conduct training lectures and free consultation services for occupational safety and health.

Caring for Female Employees

Carry on in-depth female employees' activities, comprehensively improve their overall quality, carry out the "Company's March 8th Red Flag Bearers" and "Huaneng's Most Beautiful Workers" selection and commendation, and vigorously promote the advanced deeds of outstanding female workers; organize and carry out the selection of the 12th National Women's Representatives, Fang Qian from the Planning Department of Huaneng Beijing Thermal Power Co., Ltd. was elected; organized and carried out The 6th National "March 8th Literary Family (Shuxiang Sanba)" female workers reading activity, the company won the "Special Contribution Award" of the organizing committee, and many workers won awards.

Facilitate Career Development

In 2018, the company's staff training work was carried out in an orderly manner. The Huaneng Talent Training Network College was officially launched online. Regional companies and grassroots enterprises organized and carried out various kinds of management, professional skill and technical position training. The training courses totaled 45,000, and the number of participants reached 1.204 million person-times.

- Zheng Weidong from Yuhuan Power Plant was named "Great Country Craftsman" by China Energy Chemical Geology Union
- Li Guang from Rizhao Power Plant, Yang Shengli from Baoxinghe Hydropower Station were awarded the national technical expert
- Longkaikou Hydropower Station won the Outstanding Contribution Award for the Cultivation of Skilled Personnel in the Power Industry in 2018
- Gao Xing from China Huaneng Group Co., Ltd. Hainan Branch and Zheng Guijie from Dalate Power Plant won the 2018 National May 1st Labor Medal
- The Fuel Inspection and Maintenance Team of the No. 2 Power Plant of Xilin Gol Thermal Power Company, the Operation and Maintenance Department of Xiaowan Hydropower Station, Second Production Shift of the Comprehensive Mining Team of Matigou Coal Mine won the title of "National Worker Pioneer"

Case: The Company Carried out 2018 Newly-enrolled Employee Training

The company constantly improved its newly-enrolled employee training system, set training objectives, and planned training content to help new employees integrate into their work posts or jobs as soon as possible. In August 2018, new employees orientation training camp was officially opened, with more than 1,500 participants.

The camp opening ceremony adopted the "1+48" mode (that is, 1 main camp was held in the company headquarters, and 48 sub-camps organized new employees to watch through video), and then the relevant newly-enrolled trainings were carried out respectively in each region. The company's new staff training in Beijing was rich in content. In addition to regular classroom lectures, new employees also subsequently visited the company's exhibition hall, monitoring center and Huaneng Beijing Thermal Power Co., Ltd. which enhanced employees' sense of integration and belonging.



New Employees Visiting the Huaneng Exhibition Hall

By carrying out inter-plant competitions and skill competitions, the company mobilized the enthusiasm of employees, created a sound professional skill learning atmosphere, and greatly enhanced the skill level of employees. In 2018, the company organized 123 times of competitions, with 3,548 participants, grassroots-level companies organized 907 times of competitions, with 34,250 participants, involving 101 enterprises.

The company carried out in-depth inter-company competition for power plants of units above 300 MW, and through the "Four Rounds and Four Competitions", the company appraised and commended 10 comprehensive ranking benchmark power plants and 7 indicator ranking benchmark power plants for 2017.

The company carried out all kinds of skill competitions in various categories, and successfully completed four business division (work types) skill competitions, including wind power operation inspection, electrical primary, thermal automation, auxiliary machine diagnosis and training. The company organized to participate in the 11th Power Industry Skills Competition, winning the group second prize, and all 10 contestants winning award. Among them, 3 were awarded the title of "Technical Expert in the Power Industry", and 7 were awarded the title of "Excellent Skill Contestant in the Power Industry".

Organized a total of
45000

training courses

The number of training participants reached

1.204

million

Caring for Employees in Difficulty

The company further implemented the work arrangement for poverty alleviation and assistance, revised the "Administrative Measures for Support and Assistance of Workers in Difficulty", improved the level of standardization and institutionalization of work, and wholeheartedly supported and assisted the employees in difficulties. The company made full use of holidays and important time points, carried out warm visits and gave condolence, and sent corporate care to the hearts of employees in time. The company issued the 2018 support funds on time, assisted 6486 employees in difficulties and distributed funds of 27.47 million yuan; among which all various subsidiaries helped a total of 5586 employees in difficulties, visited and gave condolence to 4179 employees in difficulties, and distributed relief funds and materials worth 14.73 million yuan for the whole year of 2018.

Enrich Life in Spare Time

The company organized various types of leisure activities such as sports, literature and art, and reading to enrich the cultural life of employees. In 2018, 1,100 cultural and sports associations were formed, 3,754 cultural and sports activities were organized, and 130,000 employee-times were involved, which promoted the overall development of employees and enhanced their cohesiveness.



Singing Competition of Zuoquan Power Plant, Celebrating the 69th Anniversary of the Founding of the People's Republic of China and the 40th Anniversary of the Reform and Opening-up



Laiwu Power Plant Cultural Performance, Celebrating the 40th Anniversary of Reform and Opening-up and the New Year's Day

Assisted
6486
employees in difficulties

Distributed funds of
2747
million yuan

Organized
3754
cultural and sports activities

130,000
person-times participated in cultural and sports activities

Case: Trade Union Brand Activities · Sending Doctors, Books to the Grassroots Volunteer Service Activities

In 2018, the company carried out medical diagnosis treatment and consultation activities, organized experts from Beijing Hospital and Beijing Cancer Hospital to 10 companies including Huaneng Lancang River Hydropower Inc., Huaneng Tibet YarlungZangbo River Hydroelectric Development Investment Co., Ltd., Huaneng Hulunbuir Energy Development Co. Ltd., Huaneng Coal Industry Co., Ltd., and work units of the company in Beijing, etc., conducted health consultation activities for more than 1,500 employees to effectively solve the difficulties in medical treatment for workers in remote areas.

The company actively implemented the relevant spirit on construction of the four-level bookstore of the All-China Federation of Trade Unions, deepened the work of "Shuxiang Huaneng (Literary Huaneng)". In combination with the activities of sending doctors, we carried out "sending book to the grassroots level" activities at the same time, sending more than 3,000 books worth 50,000 yuan to affiliated companies and set libraries into enterprise, workshop, work team, and innovation studio, continuously improving the quality of our employees, and enriching their cultural life in spare time.

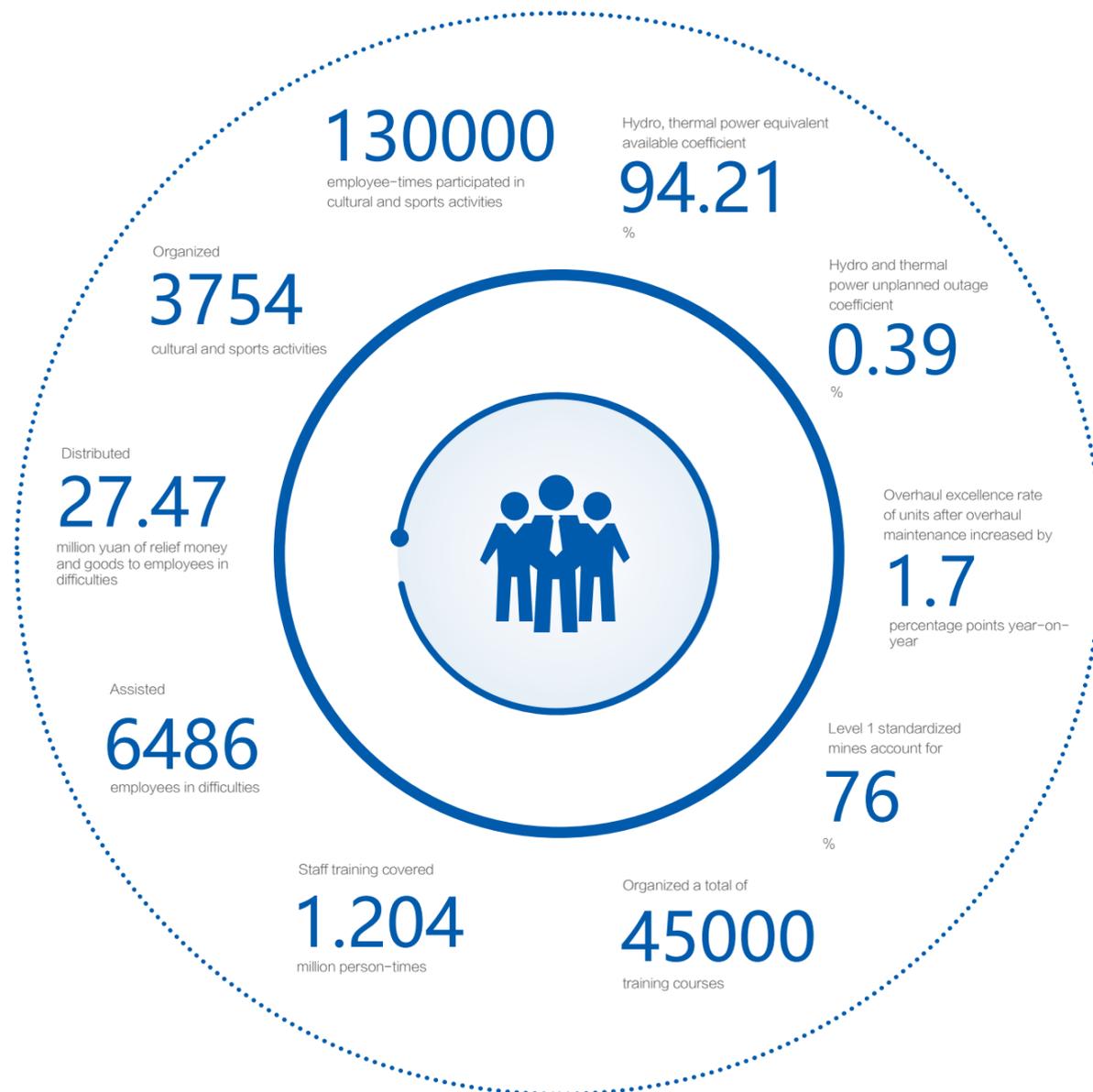
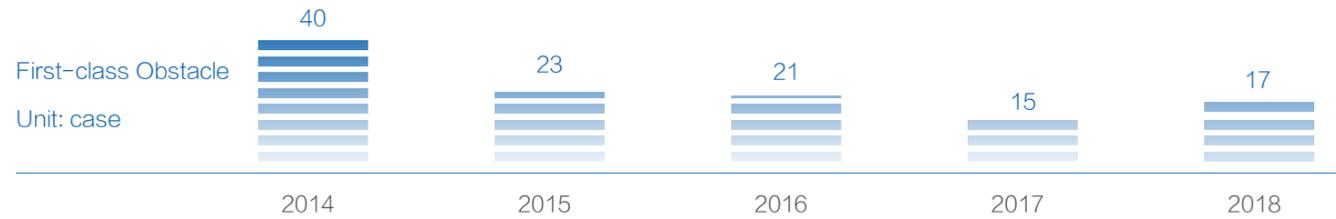


Sent Doctors to the Grassroots



Sent Books to the Grassroots

Data Documentary · Sharing People Orientation



Comments by All Parties · On People Orientation

"The overall process of the lubricating oil system fire accident emergency drill organized by Yimin Power Plant is in line with the requirements of the Guidelines for Emergency Drill of Production Safety Accidents of the State Administration of Work Safety and the Guiding Principle for Emergency Drill of Electric Power Emergencies of the National Energy Administration, and at the same time, it is also in line with the relevant regulations of the company's emergency management. It is a very successful combat drill."

—Member of the Expert Group to Observe the Drill

"Safe production is a major event that affects the lives and property of the people, an important indicator of coordinated and healthy economic and social development, and also the company's first responsibility, first task, and first benefit."

—Shu Yinbiao, Secretary of the CPC Leading Group and Chairman of the Board of Directors

"At 17:00 p.m. on September 16, 2018, the super typhoon 'Mangkhut', which is called the 'King of the Wind' of the year, landed in Haiyan Town, Taishan City, Guangdong Province. Enterprises of China Huaneng Group Co., Ltd. in Guangdong Province launched the emergency anti-typhoon and flood prevention plan, fully committed to the effective response and combating with the typhoon. Enterprises of Huaneng Group in Guangdong did not suffer any personal injury or death, power production was normal, and production infrastructure remained stable."

—China Electric Power News

"The Education and Training Center has arranged a very rich curriculum for us, and has enabled us, a group of 'laymen', gradually acquired a more rational understanding of Huaneng, of 'Three-color Culture', of the spirit of 'Three Thousand', of the core values of insistence on integrity, of focus on cooperation, of continuous innovation, of enthusiasm and enterprising, of creating performance, of service to the country, and of the strategical positioning to building a world-class enterprise with global competitiveness from a career beginning and work business outsider".

—The 1st Group of Trainees for New Employee Training in the Company in 2018

"The 5-day new employee training has benefited us a great deal. Members of the 2nd group all kept in mind of the Party lecture from Deng Jianling, Deputy Secretary Of the CPC Leading Group, which asked us to strictly discipline ourselves to follow the five aspects of 'loving the Party, being patriotic, inspirational, truth-seeking, and hard-working', not to forget our aspiration after entering the job and, and starting from 'zero', to learn from the older generation and colleagues, inherit the fine tradition of Huaneng, dare to have dreams, have courage to chase dreams, diligently fulfill dreams, and strive to become a newcomer of the era to take on the responsibility of national rejuvenation."

—The 2nd Group of Trainees for New Employee Training in the Company in 2018



Gratefulness and Contribution Make Life More Beautiful

The Party's Call: Resolutely Win the Battle Against Poverty

The 19th CPC National Congress pointed out: "It is our party's solemn commitment to allow the poor and poor areas to join the whole country in a comprehensive and well-off society. We should mobilize the whole Party's national efforts throughout the country, adhere to the precise poverty alleviation and poverty eradication, adhere to the work mechanism of the central and overall responsibility of the city and county, strengthen the responsibility system of the party and government head, adhere to the great poverty alleviation pattern, pay attention to the combination of poverty alleviation and support, and focus on poverty alleviation for the poverty-stricken areas to ensure that by 2020, under China's current standards, the rural poor to achieve poverty eradication for all poor counties, to solve the regional overall poverty, so as to eradicate the poverty once for all."

Huaneng's Action: Set an Example of Grateful Contribution

Carry out Targeted Poverty Alleviation: The company gained the "good" appraisal (the highest level) by the State Council Leading Group for Poverty Alleviation and Development in the 2018 annual fixed-point poverty alleviation work evaluation; won "China Charity Award", the highest award in the field of public welfare in China issued by the Ministry of Civil Affairs.

Create Brand Public Welfare: Huaneng "Three-Color Sail" youth volunteer activity won the first prize in SOEs Youth Volunteer Service Project Competition.

Carry out Targeted Poverty Alleviation-----60

Create Brand Public Welfare -----66

Carry out Targeted Poverty Alleviation

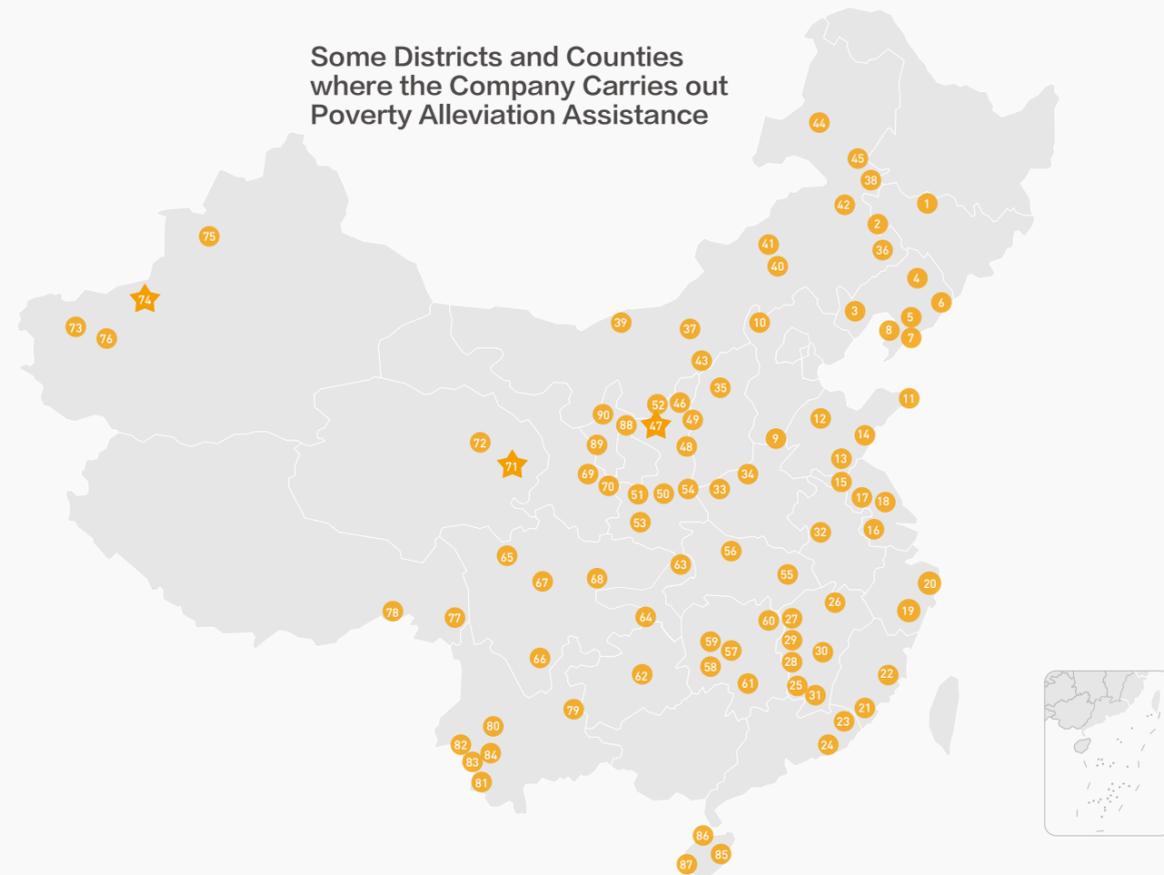
Deepen Poverty Alleviation Management

Organization System Construction

The Party leading group of the company attaches great importance to the fixed-point poverty alleviation work. In 2018, the company adjusted and established the poverty alleviation assistance work leading group at the beginning of the year, with the Party leading group secretary, deputy Party secretary and deputy general manager serving as the team leader and deputy team leader respectively, defined the relevant responsibilities of the 12 member department. Member of the leading group went to the counties, townships and villages of the assisted poverty-stricken areas 6 times, investigated on-site the promotion and implementation of the poverty alleviation projects, promoted all subsidiaries to improve the work institutions and management systems, and established a three-level management system for poverty alleviation assistance. All subsidiaries maintained close communication with the company's poverty alleviation assistance leading group to ensure that the leading group grasped the first-line information on poverty alleviation in time, and formed a linked poverty alleviation organization system.

In the process of poverty alleviation management, the company has successively formulated and issued the Notice on Deepening the Work of Fixed-point Poverty Alleviation and Counterpart Support, Implementation Opinions on Carrying out Effectively Poverty Alleviation Work, Administrative Measures on Poverty Alleviation Work, Implementation Plan for Special Governance of Work Style in Poverty Alleviation, Notice on Matters Concerning Remuneration Package of Resident Cadres in Villages for Poverty Alleviation, Work Plan of Headquarters of the Company on Fixed-point Poverty Alleviation and Counterpart Support(2018-2020), providing strong institutional and system guarantee. In 2018, the company's Party group formulated and implemented the "Red Action Plan" Work Scheme for Targeted Poverty Alleviation Campaign, which closely followed the company's "Three-color Culture" and led the whole company to carry out poverty alleviation work. In addition, for the first time, the company incorporated "performance of social responsibility and carrying out poverty alleviation work" into the assessment and evaluation of the Party building work responsibility system, and effectively improved the effectiveness of poverty alleviation management.

Some Districts and Counties where the Company Carries out Poverty Alleviation Assistance



Poverty Alleviation Fund Investment

The company adheres to the investment of funds in poverty alleviation and further strengthens targeted poverty alleviation. The dispatched working group went to poverty alleviation points one by one for survey research, sorted out the progress of the fixed-point poverty alleviation and counterpart support projects, and mastered the first-hand information. In light of the company's actual situation and the poverty conditions of the counties for fixed-point poverty alleviation and counterpart support, the company made timely adjustment of project funding plan, further highlighted the requirements for targeted poverty alleviation and targeted poverty elimination, starting from the most needed and the most urgent issues in poverty elimination combat, gave favourable with focus towards the fields of education and medical care, solidly promoted key projects such as relief for poverty-stricken college students and improvement of educational and medical facilities. Since the 18th CPC National Congress (2013-2018), the company's poverty alleviation funds reached a total of 1.875 billion yuan. In addition, the company invested 300 million yuan to participate in the preparation, establishment and operation of the "SOEs Poverty-stricken Area Industrial Investment Fund".

Poverty Alleviation Special Dissemination

With "Poverty Alleviation - We Are in Action" as theme, the company planned a special edition entitled Red Action - Targeted Poverty Alleviation Combat of the Three Great Combats in the magazine China Huaneng, vividly reporting the typical examples and advanced characters emerged in the fight against poverty. In the Xinhua Net, the company organized a dozen reports, including Gong'Ake' of Dangzuo Village, Galsang Flower on the Plateau, The 'Combatant' In the Hinterland of the Daliang Mountain, Affection 'Dwelling' in the Snow Land, To 'directly-entering-socialism ethnic groups' There Came the Huaneng People', This 'Secretary' Isn't Simple', True Feeling in the Yellow Land, Little Secretary' with Big Act, etc., all of which centering on publicizing the touching stories of more than a dozen first secretaries fighting in poverty-stricken areas, the old red revolutionary base areas, and the frontier ethnic areas.

<p>Jilin Province</p> <p>1 Nong'an County, Changchun City</p> <p>2 Tongyu County, Baicheng City</p> <p>Liaoning Province</p> <p>3 Jianchang County, Huludao City</p> <p>4 Tieling County, Tieling City</p> <p>5 Xiuyan County, Anshan City</p> <p>6 Kuandian County, Dandong City</p> <p>7 Zhuanghe City</p> <p>8 Gaizhou City, Yingkou City</p> <p>Hebei Province</p> <p>9 Wei County, Handan City</p> <p>10 Zhangbei County, Zhangjiakou City</p> <p>Shandong Province</p> <p>11 Rongcheng City, Weihai City</p> <p>12 Yucheng City, Dezhou Prefecture</p> <p>13 Lanling County, Linyi City</p> <p>14 Wulian County</p> <p>Jiangsu Province</p> <p>15 6 key areas, including the surrounding area of Chengzi Lake in the north of Jiangsu Province, the Xinangang (southwestern) Area, the Shilianghe Reservoir Area, the north area of the irrigation main channel, the Lianshu junction area, and the Old Area of the West of the Feng County.</p> <p>16 Liuhe District, Nanjing</p> <p>17 Sucheng District, Suqian City</p> <p>18 Huaiyin District, Huai'an City</p> <p>Zhejiang Province</p> <p>19 Xianju County, Taizhou City</p> <p>20 Sanmen County, Taizhou City</p>	<p>Fujian Province</p> <p>21 Yongding District, Longyan City</p> <p>22 Dehua County, Quanzhou City</p> <p>Guangdong Province</p> <p>23 Dapu County, Meizhou City</p> <p>24 Chaoyang District, Shantou City</p> <p>Jiangxi Province</p> <p>25 Luanchuan County</p> <p>26 Poyang County, Shangrao City</p> <p>27 Tonggu County, Yichun City</p> <p>28 Lianhua County, Pingxiang City</p> <p>29 Shangli County, Pingxiang City</p> <p>30 Qingyuan District, Ji'an City</p> <p>31 Gan County, Ganzhou City</p> <p>Anhui Province</p> <p>32 Huoqu County, Lu'an City</p> <p>Henan Province</p> <p>33 Mianchi County, Sanmenxia City</p> <p>34 Wangwu Town, Jiyuan City</p> <p>Shanxi Province</p> <p>35 Ningwu County, Xinzhou City</p> <p>Inner Mongolia Autonomous Region</p> <p>36 Kezuozhong Banner, Tongliao City</p> <p>37 Wuchuan County, Hohhot City</p> <p>38 Zhalaite Banner, Xing'an League</p> <p>39 Wulatehou Banner, Bayannaer City</p> <p>40 Baoligen Sumu, Xilinhot City</p> <p>41 Bayanbaolage Sumu, Xilinhot City</p> <p>42 Keyouzhong Banner, Xing'an League</p> <p>43 Zhungeer Banner, Ordos City</p> <p>44 Ewenki Banner, Hulunbeir City</p> <p>45 Zhalantun City</p>	<p>Shaanxi Province</p> <p>46 Yulin City</p> <p>47 Hengshan District, Yulin City</p> <p>48 Wubao County, Yulin City</p> <p>49 Jiaxian County, Yulin City</p> <p>50 Yaozhou District, Tongchuan City</p> <p>51 Xunyi County, Xianyang City</p> <p>52 Yuyang District, Yulin City</p> <p>53 Fufeng County, Baoji City</p> <p>54 Friendship Village, Huaxi Town, Huayin City</p> <p>Hubei Province</p> <p>55 Tuanfeng County</p> <p>56 Sanguandian Office, Danjiangkou City</p> <p>Hunan Province</p> <p>57 Xinhua County</p> <p>58 Dongkou, Shaoyang City</p> <p>59 Xupu County, Huaihua City</p> <p>60 Pingjiang County, Yueyang City</p> <p>61 Qiyang County</p> <p>Guizhou Province</p> <p>62 Weng'an County, Qiannan Prefecture</p> <p>Chongqing Municipality</p> <p>63 Chengkou County</p> <p>64 Jiangjin District</p> <p>Sichuan Province</p> <p>65 Aba County</p> <p>66 Zhaojue County</p> <p>67 Wenchuan County</p> <p>68 L'an Township, Guang'an City</p>	<p>Gansu Province</p> <p>69 Jingning County</p> <p>70 Zhuanglang County, Pingliang City</p> <p>Qinghai Province</p> <p>71 Jianzha County, Huangnan Prefecture</p> <p>72 Gonghe County, Hainan Prefecture</p> <p>Xinjiang Autonomous Region</p> <p>73 Kizilsu Kirghiz Autonomous Prefecture</p> <p>74 Aheqi County, Kizilsu Kirghiz Autonomous Prefecture</p> <p>75 Nilek County</p> <p>76 Jiashi County, Kashgar Region</p> <p>Tibet Autonomous Region</p> <p>77 Mangkang County, Changdu City</p> <p>78 Motuo County, Linzhi City</p> <p>Yunnan Province</p> <p>79 Fuyuan County, Qujing City</p> <p>80 Yun County, Lincang City</p> <p>81 Lancang County, Pu'er City</p> <p>82 Gengma County, Lincang City</p> <p>83 Cangyuan County, Lincang City</p> <p>84 Shuangjiang County, Lincang City</p> <p>Hainan Province</p> <p>85 Tunchang County</p> <p>86 Chengmai County</p> <p>87 Dongfang City</p> <p>Ningxia Autonomous Region</p> <p>88 Yanchi County</p> <p>89 Haiyuan County, Zhongwei City</p> <p>90 Qingtongxia City</p>
--	--	--	---

Case: Xinjiang Aheqi County Research Study Group Visited Huaneng

In August 2018, the company organized 20 elementary school students from Aheqi County, Xinjiang to visit the company headquarters and Huaneng Beijing Thermal Power Plant. During the activity, the students learned about the basic principles of power generation, the basic operation mode of the power plant, the advanced environmental protection technology of the power generation industry and the development history of the company. The activity opened up the horizons and helped the students establish lofty ideals.



Xinjiang Aheqi County Research Study Group
Visiting the Company Exhibition Hall



Group Photo of Xinjiang Aheqi County
Research Study Group

Implement Poverty Alleviation Action

Help Fixed-point Poverty Alleviation

The company conscientiously implemented the work plan of the CPC Central Committee and the State Council on the fixed-point poverty alleviation of central units. In 2018, we invested 23.6 million yuan of poverty alleviation funds in Hengshan District of Yulin, Shaanxi Province, Aheqi County of Xinjiang Autonomous Region and Jianzha County of Qinghai Province, and implemented the Student Aid Operation of Dongliang Project, Emergency Rescue Operation of Tongzhou (Mutual Supports) Project, Rejuvenating Farmer Operation of Blessing Project, and Resident Village Grassroots Party Building Project, focusing on helping the poverty-stricken people to get rid of the plight of lack of educational resources, backward medical conditions, and poor living environment, effectively improved the life quality of local people, and ensured that the poverty-stricken households increased their income steadily.

In Hengshan District of Yulin City, Shaanxi Province, the company invested a total of 44.8-million-yuan poverty alleviation funds, focusing on implementing poverty alleviation projects in featured industrial development, education development, and rural infrastructure improvement.

Carry out Industrial Poverty Alleviation

Efforts were made to build a brand-based poverty alleviation model, supported the good agricultural demonstration and promotion projects, and cultivated more than 3,500 mu (about 233 hectares) of high-quality coarse grains, rice, fruit and vegetable planting bases, and carried out good agricultural standard technology promotion training.



Good Agricultural Demonstration
Promotion Project

Improve Infrastructure

China Huaneng solidly promoted the SOEs "hundred counties and ten thousand villages" campaign, invested an accumulative fund of 13.9 million yuan, assisted in the construction of 600 kilometers of roads, 30 bridges and culverts, 28 wells, 22 centralized water supply points, 169 rain collection sites, and installed 11 transformers, 420 solar street lamps, 257 well covers, benefiting 12,123 households with 50,597 people, thereby effectively alleviating the difficulties of local people in travel, water use, power shortage and development production.

Facilitate Poverty Alleviation in Education

The company implemented Huaneng "Dongliang (Backbone) Project · New Great Wall Poverty-stricken Students Care Action", funded 99 college students and 203 senior high school students from poverty-stricken families.



Dongliang Project - New Great Wall
Poverty-stricken Students Care Action

In Aheqi County, Xinjiang Autonomous Region, the company invested a total of 114.10 million yuan, ranging from poverty-stricken family life assistance, urban and rural education, science and technology, culture, health, infrastructure and other popular projects, forming a comprehensive all-round assistance to Xinjiang Autonomous Region, covering many aspects such as people's livelihood, industry, talents, planning, etc..

Solve Income Difficulties

Huaneng Biedieli Hydropower Station had paid a total of 245 million yuan in profits and taxes for Aheqi County, creating more than 1,000 jobs for local people, opening up new channels for farmers and herdsmen to increase their income. In addition, the company also prepared to set up the Gobi Seabuckthorn Industry Development Investment Fund to increase the income of the poor in combination with poverty alleviation work in the village.

Solve Housing Difficulties

The company invested a total of 6.5 million yuan to construct 650 sets of houses in Huaneng New Village of Halabulak; invested 1 million yuan of funds to construct 50 sets of resident houses for poverty-stricken "Three Nos", and about 100 poverty-stricken households achieved poverty alleviation.



Halabulak Huaneng New Village

Solve Difficulty in Getting Medical Services

The company invested a total of 14.6 million yuan in aid for the construction of new ward building, the purchase of medical equipment, and ancillary facilities for the Aheqi County People's Hospital, so that the service function of the county people's hospital has rapidly improved.



The Company Provided Assistance
to the Establishment of Aheqi County
People's Hospital

Solve the Difficulty of Going to School

The company invested an accumulative aid funds of 16 million yuan for the reconstruction of Kulan Sajik Bilingual Kindergarten and Primary Schoolin, invested 35.8 million yuan to provide different levels of assistance to Tongxin Middle School, Tuanjie Primary School and Huaneng Tuohe Primary School, to carry out funding for poverty-stricken college students, to achieve full coverage of funding for students from difficult families, and full coverage of vocational and technical training for unemployed graduates in junior and senior high schools.



Huaneng Tuohe Primary School of
Aheqi County

In Jianzha County, Qinghai Province, the company continued to focus on improving people's livelihood and helping the development of various undertakings in Qinghai. By the end of 2018, the company accumulated assistance to Jianzha County amounting to 39.7 million yuan, and carried out counterpart support in the county cultural education, medical and health, and talent training, receiving fully affirmation and praise by local cadres and the masses.

Get Rid of the Shortage of Medical Resources

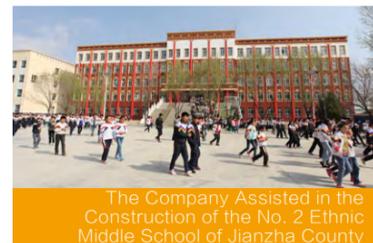
The company had subsequently invested 6 million yuan to equip many medical institutions with ambulances, CT machines, color ultrasound machines and other equipment to improve the conditions for medical treatment at the grassroots level.



Ambulance Aid by the Company

Improve the Current Conditions of Lack of Educational Resources

The company had invested an accumulative amount of 20.9 million yuan, and subsequently built teaching building, office building, laboratory building, 400-meter long standard sports field cemented with rubber and plastic materials, and indoor sports hall in No. 2 Ethnic Middle School of Jianzha County, thus creating a good learning environment for students.



The Company Assisted in the Construction of the No. 2 Ethnic Middle School of Jianzha County

Support Local Poverty Alleviation

In Yunnan, the company launched two rounds of "poverty alleviation projects", with an accumulated assistance of 230 million yuan, focusing on the implementation of four theme projects, namely, quality improvement, people's livelihood security, national culture, and ecological protection. In June 2016, the company signed a cooperation agreement with the Yunnan Provincial People's Government. From 2016 to 2019, the company invested 500 million yuan each year to support the two "directly-entering-socialism ethnic groups", namely, Lahu ethnic minority and Wa ethnic minority, totaling 151,000 people, in their combat in poverty elimination.



Improve the Traffic Environment of the Directly-entering-socialism Ethnic Groups



Improve the Housing Environment of the Directly-entering-socialism Ethnic Groups



Improve the Education Environment of the Directly-entering-socialism Ethnic Groups

In Tibet, the company built Yarang Hydropower Station and its line extension project to help Motuo County get rid of its "power island" dilemma. We carried out the "strengthened the infrastructure and benefited the people" project, helping the people in three poverty-stricken villages in Motuo County solve problems in drinking water, electricity, health, and other life difficulties. We fundraised 2 billion yuan to build the Pai-Mo (Pai Township-Motuo County) Rural Highway to promote the local economic and social leapforward development. We jointly organized a training course on construction skills for farmers and pastoral workers of Jiacha County, conducted training on construction skills for more than 100 farmers and herdsmen, focusing on enhancing the "hematopoietic" functions, improve the labor skills of local people, and increase their income.



The company Funded the Construction of the Pai-Mo Rural Highway

In Sichuan, the company donated funds for the construction of poverty alleviation photovoltaic power stations in the poverty-stricken villages of Liangshan prefecture and Aba prefecture, increasing their collective income of 260,000 yuan annually; set up "Infinite Support (Chuanliubuxi)" Dongliang (pillar of a state or backbone of a country) Project Fund, providing long-term living allowance for students of poverty-stricken families from the Yi nationalities and Tibetan nationalities, amounting to a total of 1.12 million yuan throughout the year, supporting 185 poverty-stricken students.



"Infinite Support " Dongliang Project

In Fujian, the company donated 1.14 million yuan to Huhe Village of Longyan City for the construction of 140 kW photovoltaic power generation poverty alleviation project. The project was connected to the grid and started to generate electricity at the end of 2018, increasing the income of the village collective by more than 50,000 yuan annually, helping to achieve the goal of poverty alleviation work in 2018.

In Gansu, the company invested 3 million yuan to reconstruct the roads in Sihe Township, driving poverty-stricken households into the tertiary industry and broadening the channels for poverty alleviation. In the whole year, a total of 209 labor were transferred and 166 were employed to new job positions, thus increasing their income of poverty-stricken people.

In Hubei, the company carried out various types of Party building theme activities in batches to the poverty-stricken point Shiziyan Village, invited Party representatives of Shiziyan Village to Wuhan to inspect employment and agricultural and sideline products sales channels and. With the Party branches as a bridge and link, we further broaden the channels for poverty-stricken households to get rid of poverty through employment and industry.

In Guangdong, the company had invested an accumulative amount of 1.5 million yuan to support the Beimen Community of Haimen Township to implement Xinghu Market, an asset income poverty alleviation project. All poverty-stricken households in the community had achieved poverty alleviation by the end of 2018.

In Shanxi, the company directly invested 800,000 yuan and introduced funds of 300,000 yuan to carry out poverty alleviation assistance in Zuoquan County. We helped Suting Village to renovate and harden the streets in the villages, create convenient travel conditions for the villagers; helped Shitaitou Village to build land guarding dams and land reclamation to increase crop yields and incomes of poverty-stricken households.

In Ningxia, the company provided 100,000 yuan to carry out villager welder skills training to help villagers improve their skills to get rid of poverty; provided 220,000 yuan to promote the "urban and rural civilization co-construction and cultural poverty alleviation" project and to build cultural squares, cultural corridors, basketball courts etc., thus enriching the spiritual and cultural life of the villagers.

Innovate Forms of Support and Assistance

The company actively carried out consumption poverty alleviation. Great Wall Securities Co., Ltd. developed consumption poverty alleviation projects according to local conditions, purchased mutton of Yanchi County worth 430,000 yuan, Qujiang thin black tea of Xinhua County worth 20,000 yuan, organic rice of Hengshan District, Yulin City worth 100,000 yuan and honey, linseed oil, dried fruits and other agricultural specialties of Nileke County worth 480,000 yuan with a view to supporting the poverty-stricken people out of poverty.

In March 2018, Guicheng Trustee Co., Ltd. was approved to issue RMB 500 million yuan "Huimin (benefiting the people) Loan" asset-backed securities. It was the first financial securities product in China to support poverty alleviation, which greatly promoted poverty alleviation to advance into the benign cycle of "targeted drip irrigation" and "hematopoietic poverty alleviation".

The company developed the "Poverty Alleviation Public Welfare" section in "Huaneng Chengzhangbao (hncb.com) (APP)", using mobile internet technology to connect the agricultural and sideline products resources in poverty-stricken areas with the life needs of employees, guiding employees to actively participate in poverty alleviation and contributing to the combat of poverty alleviation.

Create Brand Public Welfare

Deepen Public Welfare Management

While vigorously carrying out targeted poverty alleviation, the company exerts efforts to carry on traditional public welfare activities, builds youth volunteer service platform, regulates the "Three-color Sail" youth volunteer service activities, and builds a "three-color sail" youth volunteer service brand.

In 2018, the number of volunteers in the company reached 80,843, and more than 420 service-time activities were carried out throughout the year. Huaneng's "Three-color Sail" youth volunteer activities won the first prize in the SOEs Youth Volunteer Service Competition.

Deliver Public Welfare Action

In 2018, the company carried out in-depth "Three-color Sail" youth volunteer service activities. Young volunteers actively participated and combined the volunteer service with learning Lei Feng, donating money for education, environmental protection, poverty alleviation, and helping people in difficulties and other activities to enrich corporate public welfare practices.

Case: The Company Launched the "Developing Cities through Civilization, Nourishing Cities with Every Action" Volunteer Service Activity

In March 2018, the voluntary squad of Huaneng Hebei Clean Energy Branch went to Zhangjiakou to carry out the "Developing Cities through Civilization, Nourishing Cities with Every Action", "Three-color Sail · Travel to Yan Zhao (Hebei)" volunteer garbage pick-up campaign, called on everyone to care for the environment. The activity not only comprehensively improved the important awareness of the young workers on environmental protection, but also called on everyone to work hard to create a clean and beautiful home.



"Developing Cities through Civilization, Nourishing Cities with Every Action", "Three-color Sail · Travel to Yan Zhao" Volunteer Activity

Case: The Company Volunteers Named "Three-color Sail" Carry out Pairing Assistance Activities

The Youth League of Huaneng Coal Industry Co., Ltd. at all levels organized the "Three-color Sail" volunteer service team, actively participated in the fixed-point poverty alleviation work, established a pairing assistance relationship with the two schools of the assisted village, and carried out "Caring for Left-behind Children, Helping Poverty Alleviation", "Huaneng Coal Brings Sunshine by Providing Clothes in Winter", "Culture Nourishes Dreams, Blessings in the Warm Winter", and other volunteer service activities. The "Three-color Sail" volunteer service team donated all kinds of caring and supporting materials worth totaling more than 30,000 yuan.



"Huaneng Coal Brings Sunshine by Providing Clothes in Winter" Volunteer Activities

Case: The Company Launched a Large-handed Volunteer Activity

In March 2018, employees of the company's subsidiary Hanfeng Power Plant came to Xibaili Village Primary School to carry out the "big hands holding small hands" volunteer service activity, donated more than 5,000 yuan worth of cultural and sports articles to the school, and produced various kinds of vivid and interesting courseware for the children. We encouraged children to study hard and use knowledge to help themselves and their families get rid of poverty.



"Big Hands Holding Small Hands" Volunteer Service Activity

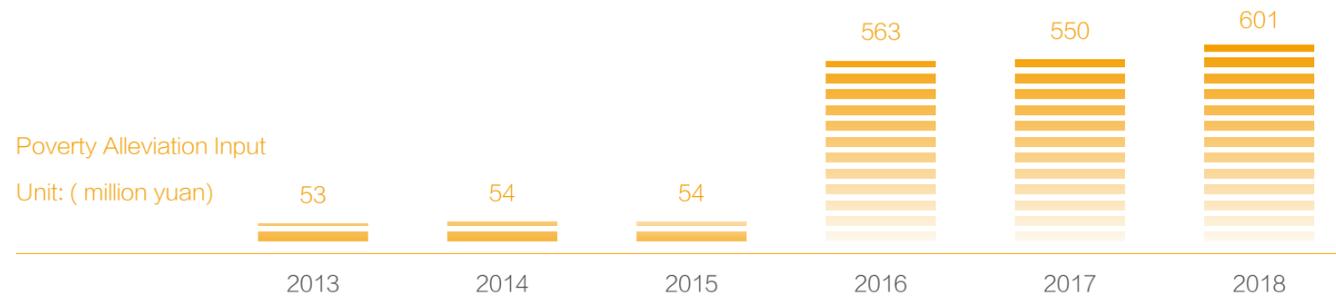
Case: A Warm Public Welfare Activity for Hope Primary School

In May 2018, Huaneng Hegang Power Co., Ltd. officially established its "Three-color Sail" volunteer service team, with 139 registered volunteers. On the day of the establishment of the service team, the volunteers walked into the Xinyue Village Danlin Hope Primary School to bring them rich gifts and a happy companion time to let the left-behind children feel the warmth and affection.



Hegang Company "Three-color Sail" Volunteer Service Team

Data Documentary · Sharing Gratefulness and Contribution



Comments by All Parties · On Gratefulness and Contribution

"Huaneng Group actively fulfilled its political and social responsibilities, cherishes profound sentiments of friendship with the people of the poverty-stricken areas of the ethnic minorities in the border areas and, with all sincerity, true feelings, and real measures, donates 2 billion to help the people of Lahu nationalities and Wa nationalities of Yunnan province in their poverty alleviation campaign and achieved remarkable results."

— CPC Yunnan Provincial Committee, Yunnan Provincial People's Government

"Huaneng Lancang River Hydropower Co., Ltd. has assisted the people of directly-entering-socialism ethnic groups in Shuangjiang, Cangyuan and Gengma Autonomous Counties from this year, injecting a strong impetus into the work of poverty alleviation in Lincang City. Lincang will further increase its efforts and optimize its measures to accelerate the construction of a well-off society of the poverty-stricken people of directly-entering-socialism ethnic groups in parallel with the whole country, and ensure the good, effective, and efficient use of the poverty alleviation funds."

— Yang Haodong, Deputy Secretary of the CPC Lincang Committee and Mayor of Lincang Municipal Government

"Huaneng has been carrying out poverty alleviation in Yulin area for more than 20 years. The cadres dispatched by Huaneng carried out poverty alleviation always in the front line, fought together with Yulin people, and formed a deep friendship. Niu Lianqi, the former director of the Huaneng Poverty Alleviation Office, had been engaging in the battle for 10 years since his rooting in Yulin for poverty alleviation in 1998. In 2008, he died in his poverty alleviation post that he loved."

— Zhang Lude, Deputy Inspector of Shaanxi Provincial Poverty Alleviation Office

"Huaneng Dongfang Power Plant, as a SOEs, can actively put into effect the various poverty alleviation policies and implement various poverty alleviation work in accordance with the municipal and township poverty alleviation work requirements, and has made unprecedented achievements, which is really hard to come by. The company has done a good job in the poverty alleviation endeavor, and set a good example for other enterprises."

— Head of Tian'an County, Dongfang City, Hainan Province

"The study-tour activity of children from the poverty-stricken mountain areas carried out by Huaneng Group opened up the children's vision, which was conducive for the children to overcome their present difficulties, to change their life destiny and the appearance of their hometown through hard struggle, and to strive to be communicators of good behavior, good fighters in the new era, and courageous builders for the great rejuvenation of the Chinese nation in the future."

— Chen Daiyong, Member of the CPC Committee of the Audit Office of Sichuan Province



Zhang Pu, a Villager of Miaowei Township, Built the Gratefulness Platform at his Own Expense to Sing and Praise the Construction of Miaowei Hydropower Station

Corporate Social Responsibility Management

Responsibility Vision

Company Culture

Red Huaneng

"Red" is the true color of China Huaneng, the foundation of our existence, and the essence of "Three Colors". The construction of the a "red" company is our fundamental attitude and spiritual realm, the concentrated expression of our historical mission for the development of the national economy, social progress and the improvement of people's living standards, and also the vivid portrayal of our responsibilities.

Green Huaneng

"Green", symbolizes the coordinated development and harmonious progress between human and nature environment. The construction of a "green" company shows the humanistic concept and scientific attitude that advocates science, respects talents, pays attention to science and technology, protects the environment and promotes the sustainable development.

Blue Huaneng

"Blue" is the basic color of the logo of China Huaneng, meaning that we insist on advancing with the times, learning and innovating, and facing the world, incorporating all the advanced technologies and advanced cultures in the world to expand our cause, demonstrating the broad mind of Huaneng people for inclusiveness and universality, as well as the ambition of being a strong company in the world.

Enterprise Mission

Strategic Objectives

Strategic Positioning

Development Concept

Core Value

- "Red" company that serves socialism with Chinese characteristics;
- "Green" company that focuses on science and technology and protect the environment;
- "Blue" company that keeps pace with the times, learns and innovates, and faces the world.

- Build a powerful large-scale enterprise with first-class management, commitment to the country, major presence in the world with global competitiveness.

- Building a world-class company with global competitiveness that focuses on power generation with coal production as the foundation, finance as the supporting business, technology as the driving force, and industrial synergy as the feature.

- Be strong and stay ahead.

- Adhere to integrity, and focus on cooperation;
- Constantly innovate, and be proactive and enterprising;
- Create performance, and serve the country.

Responsibility Strategy

Responsibility Planning

	Inside the Enterprise		Outside the Enterprise	
Development Goals	Strengthen Responsibility Management	Promote Responsibility Integration of Secondary Company	Build Internal and External Two-Way Communication Platform	Promote Corporate Responsibility Image Communication
Implementation Path	Improve Social Responsibility System Continuously Carry out Responsible Knowledge Training Continuously Conduct Excellent Case Appraisal and Selection	Conduct Secondary Company Responsibility Research Establish Social Responsibility Demonstration Base Encourage Social Responsibility Reports Release	Continuously Release Social Responsibility Reports Solidly Complete Responsibility Issues Investigation Regularly Conduct Responsibility Exchange Seminars	Participate in External Social Responsibility Activities Preside over Responsibility Communication Activities Responsible Voice through the Media

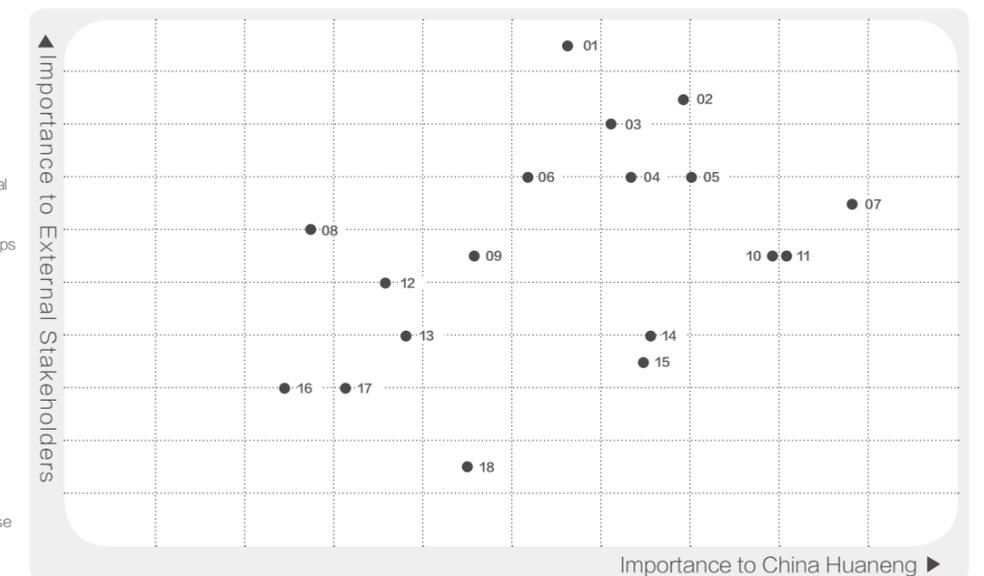


Scan the QR code, and learn more about "China Huaneng 2018 Social Responsibility Core Issues Survey Activities"

- | | |
|---|---|
| 01 Guarantee Power Supply | 10 Optimize Industrial Layout |
| 02 Ensure Safe Production | 11 Improve Quality of Development |
| 03 Advance Pollution Prevention | 12 Improve Environmental Management |
| 04 Carry Out Targeted Poverty Alleviation | 13 Strengthen Partnerships |
| 05 Deepen Technological Innovation | 14 Create Brand Public Welfare |
| 06 Implement Employee Responsibility | 15 Social Responsibility Management |
| 07 Adjust Energy Structure | 16 Drive Local Development |
| 08 Strengthen Responsible Procurement | 17 Deeply Cultivate Overseas Markets |
| 09 Enhance Environmental Protection Awareness | 18 Strengthen Enterprise Party Building |

Core Issues

The company actively responds to the Global Reporting Initiative GRI Sustainability Reporting Standard, Chinese Academy of Social Sciences CASS4.0 and other standard initiatives, conducts internal and external stakeholder surveys in conjunction with industry and enterprise realities, clarifies the core issues of corporate social responsibility, scientifically determines the boundaries of the report content, and effectively responds to the concerns of stakeholders.



Responsibility System

In the process of social responsibility management, the company constantly improves the responsibility system construction, and promotes the institutionalization and normal development of social responsibility work. In January 2018, the company printed and issued the Measures for the Assessment and Evaluation of the Party Building Work Responsibility System (Trial), incorporating society responsibility management into the assessment system for the first time, thereby effectively improving the level of corporate social responsibility integration into production operations.

Institutional Classification	Name of Main Systems
Basic Management System	Administrative Measures for Poverty Alleviation Work, Work Scheme for the Red Action Plan for Targeted Poverty Alleviation, Administrative Measures on the Three-color Sail Youth Volunteer Activity
Related Issues System	Administrative Measures for Management of Science and Technology Projects, Evaluation Standards for the Implementation of Safety Production Responsibility System, Implementation Plan for Pollution Prevention and Control (2018 – 2020), Opinions on Accelerating the Selection and Cultivation of Internationalized Talents, Administrative Measures for Support and Assistance for Workers in Difficulty

Responsibility Organization

The company established a social responsibility management committee to lead and be responsible for the work related to corporate social responsibility, to take the lead in the deliberation and decision-making of major issues, and to form a social responsibility management organization mechanism with top-down and clear division of labor. The Headquarters departments set up social responsibility person-in-charge or leaders, and each subsidiary set up contact person for social responsibility to form a social responsibility work system linked to the upper and lower levels, and to promote various departments and subsidiaries to fulfill our social responsibilities.

Organizer	Centralized Coordination	Integration and Implementation	Main Responsibility Issue
Board of Directors	Social Responsibility Division of the Planning and Development Department (In charge of Social Responsibility, and Targeted Poverty Alleviation)	General Administration Department	Responsibility Communication
		Corporate Governance Department	High Quality Development
		Legal Affairs Department	Governing Enterprises according to Law, Risk Management and Control
		Safety Supervision Department	Safe Production
		Department of Production Management and Environmental Protection	Guarantee Power Supply and Environmental Protection
		Department of Science and Technology Innovation	Scientific and Technological Innovation
		Procurement Management Department	Partner Cooperation, Responsible Procurement
		International Cooperation Department	Open Development, Belt & Road
		Organization Department of Party Leading Group	Employee Responsibility
		Party Building Department	Strengthen Party Building

Corporate Executives Participating in Social Responsibility Related Activities

Activity Time	Company Leader	Participating in Activity	Main Content
June 2018	Deng Jianling: Deputy Secretary of the CPC Leading Group and Vice President	"Central Regional Joining Hands and Seeking Common Development" Cooperation and Exchange Meeting	Conducted in-depth exchange with leaders of Heilongjiang Province, major cities and related enterprises.
July 2018	Wang Min: Member of the CPC Leading Group and Vice President	China – Kazakhstan Business Leaders Forum	As the chairman of the Chinese business delegation, presided over the forum, in his opening speech, introduced the major achievements of Huaneng's participation in the "Belt & Road" construction, and proposed on the acceleration of building a clean, low-carbon, safe and efficient energy system in China and Kazakhstan.
September 2018	Fan Qixiang: Member of the CPC Leading Group and Vice President	Opening Ceremony of the 17 th Western China International Fair	Community of Shared Future Cooperation and Development Conference of National (Regional) Enterprises Participating in the "Belt & Road" & Central Regional Symposium for Governance and Rejuvenation of Sichuan Province Going to a New Level
September 2018	Fan Qixiang: Member of the CPC Leading Group and Vice President	Hydropower Memorial Conference of China on its 40 th Anniversary of Reform and Opening-up & Tibet Hydropower Development Forum	Delivered special remarks on profound understanding of the importance of hydropower development in Tibet, strengthening responsibility, carrying out effectively works in aiding and building Tibet, serving the national strategy, and developing Tibet hydropower efficiently.
December 2018	Shu Yinbiao: Secretary of the CPC Leading Group and Chairman of the Board of Directors	Forum Celebrating the 40 th Anniversary of Reform and Opening-up	Convey the spirit of the celebration of the 40 th anniversary of reform and opening-up, review the glorious course of Huaneng's birth, growth and development along with China's reform and opening-up, sum up achievements and experience, call on Huaneng's 140,000 cadres and workers to continue their struggle in the new era, and create new glory and splendor.
December 2018	Wang Min: Member of the CPC Leading Group and Vice President	"Investment · Green China" – 2018 China-US Green Fund First Partner Conference	Conducted in-depth exchange with the main leaders of the China-US Green Fund on promoting sustainable development, building a green industrial system, and cultivating green investment in a market-oriented manner.

Responsibility Culture

Responsibility Training

The company attaches great importance to the improvement of our own responsibility, the relevant responsible personnel actively participate in the SOEs social responsibility work training course organized by SASAC and the "public welfare lecture" social responsibility training activities organized by Chinese Academy of Social Sciences Corporate Social Responsibility Research Center to enhance the social responsibility management and report compilers' social responsibility awareness, and enhance understanding and grasp of relevant theories and report preparation standards and methods. At the same time, within the company, with the internal social responsibility report preparation work as the starting point, at the company headquarters, we carried out the 2nd social responsibility training to further promote various departments and subsidiaries to perform responsibilities and improve the quality of the report in 2018.



Company Personnel Participate in the "Public Welfare Lecture" Training



The Second Social Responsibility Training

Responsibility Evaluation for Recommendation

In 2018, the company carried out the 2nd social responsibility outstanding cases competition, collected the social responsibility cases from 42 subsidiaries, through online voting and expert scoring, finally selected the "2018 Corporate Social Responsibility Excellence Cases", put the list of winners into this report to be open to the whole society, established a pioneering model, and promoted subsidiaries to better fulfill our social responsibilities.

Responsibility Honor

Outside the company, Huaneng actively participated in a number of social responsibility-related selection activities and won numerous awards for our outstanding performance management and practice.

China Huaneng Responsibility 2018

- In July 2018, the 2017 Sustainability Report was rated as five-star (the highest level) by the Chinese Academy of Social Sciences. The company had become the only domestic power generation company to receive five-star evaluation for 7 consecutive years.
- In September 2018, the company won the 10th "China Charity Award" by the Ministry of Civil Affairs for our outstanding performance in the charity field of targeted poverty alleviation.
- In November 2018, at the Blue Book for Corporate Social Responsibility (2018) press conference hosted by the China Social Responsibility 100 Forum and the Social Science Literature Publishing House, the company was awarded the title of "Responsibility for Ten Years · Top Ten SOEs". In addition, the Blue Book pointed out that the company's social responsibility development index was 91.1 points, ranking 6th among the top 300 enterprises and 4th among the top 100 SOEs. At the same time, as a five-star company, China Huaneng was also the only SOEs with the social responsibility development index that had remained at the top 10 for the past 10 years.

Responsibility Participation

The company continues to innovate communication methods, expand communication channels, build a social responsibility communication mechanism. We open a social responsibility column on the official website to enhance employees' sense of participation, deepen the depth and breadth of communication with stakeholders, improve the "daily, regular, annual" trinitarian communication system. We conscientiously implement the spokesperson system, set up the media open day, organize external stakeholders to walk into the company for visit and research. We insist on releasing the annual sustainability report, selectively release special reports on key issues, and disclose responsibility information to the public. In addition, we join a number of social organizations, actively participate in industry exchanges, and effectively interact with stakeholders.

Expectations to the Company	Stakeholders	Company Response
Respond to National Strategy, Operate in Compliance with Law and Regulations, and Ensure Electrical Safety	Government	Serve the National Strategy, Adhere to Sound Operation, and Ensure Power Supply
Assets Preservation and Appreciation, Avoid Economic Risks, and Maintain Information Communication	Shareholders	Enhance Economic Benefits, Strengthen Risk Prevention and Control, and Exchange and Communicate Regularly
Improve Welfare Treatment, Safeguard Personal Safety and Career Development of Employees, and Balance Work and Life	Staff	Protect Basic Rights, Ensure Safe Production, Carry out Employee Training, Care for Employees' Life
Guarantee Project Quality, Perfect Customer Service, Promote Engineering Technology Innovation	Customer	Strengthen Quality Management, Perfect Service System, Encourage all Employees to Innovate
Develop technical exchange, Conduct Professional Experience Sharing	Industry	Participate in Industry Conferences, Strengthen Daily Contacts
Support Community Construction, and Carry Out Public Welfare Activities	Community	Help Poverty Alleviation, and Create Brand Public Welfare
Adhere to Business Ethics, and Achieve Mutual Benefit and Win-win	Partnership	Implement Sunshine Procurement, and Reinforce Strategic Cooperation
Participate in Social Groups, and Comply with Articles of Association	NGO	Actively Participate in Activities, and Proactively Offer Advice and Suggestions

- In December 2018, in the Blue Book of Enterprise Poverty Alleviation (2018) Press Conference & The 3rd Enterprise Targeted Poverty Alleviation Red Flag Summit Forum" guided by the Department of External Cooperation, State Council Leading Group Office of Poverty Alleviation and Development (LGOP), Institute of Industrial Economics, Chinese Academy of Social Sciences, and China Foundation for Poverty Alleviation, and sponsored by China Social Responsibility 100 Forum, the company was awarded the "2018 Enterprise Poverty Alleviation Excellent Case Award".
- In December 2018, at "The 7th Responsibility Sharing Annual Meeting" guided by China Academy of Social Sciences Corporate Social Responsibility Research Center and sponsored by China Social Responsibility 100 Forum, the company won the "2018 China Social Responsibility Targeted Poverty Alleviation Award".
- In January 2019, the Department of External Cooperation, State Council Leading Group Office of Poverty Alleviation and Development (LGOP) carried out research on cases of targeted poverty alleviation by enterprises. After the initial review, secondary review, expert review, the company's case entitled "New Era of Targeted Poverty Alleviation, Huaneng's Broadless Love Warmed the People" was selected as "The 50 Best Cases of Enterprise Poverty Alleviation".

Major Social Organizations in which the Company Participates

Name of Organization	Position
China Electricity Council (CEC)	Vice Chairman
Global Energy Interconnection Development and Cooperation Organization (GEIDCO)	Director
China Enterprise Confederation (CEC), China Enterprise Directors Association (CEDA)	Vice Chairman
China Energy Research Society (CERS)	Vice Chairman
China Group Companies Association (CGCA)	President
China Federation of Industrial Economics (CFIE)	Director
China Association for Quality (CAQ)	Director
China Industry Overseas Development and Planning Association	Vice President
China Electric Power Development Association	Vice President
China Society of Electrical Engineering	Vice Chairman
World Economic Forum	Partner
The Asia Pacific Power Association	Member
China International Chamber of Commerce	Standing Director
China International Council for the Peromotion of Multinational Corporations	Vice President
China Association of Work Safety (CAWS)	Vice President
China Electric Equipment Management Association (CEEMA)	Standing Director
China Society for Hydropower Engineering (CSHE)	Member
China Electric Power Construction Association (CEPCA)	Vice President
China Tendering and Bidding Association (CTBA)	Vice President
China Federation of Logistics and Purchasing (CFLP)	Vice President
China Nuclear Society	Vice Chairman
China Nuclear Energy Association (CNEA)	Vice Chairman
World Association of Nuclear Operators (WANO)	First-Level Member

Outlook 2019

2019 is the 70th anniversary of the founding of PRC. It is a crucial year for building a well-off society in an all-round way and achieving the goal of struggle of the first hundred years, and also a key year for the company to create a world first-class enterprise with global competitiveness. The company will adhere to the guidance of Xi Jinping's Thoughts on Socialism with Chinese Characteristics for the New Era, adhere to the general tone of steady progress, adhere to the new development concept, adhere to the requirements of high-quality development and, with deepening the supply-side structural reform as the main line, closely surrounding the "six new enhancements" and "two major breakthroughs", with safety and environmental protection as basis, centering on quality improvement and efficiency increase, and reform and innovation as the driving force, coordinate and promote stable growth, structure adjustment, deepening of reform, and strengthening Party building and various other works to ensure that the annual targets and tasks will be completed.



Reform and Innovation, Help the Economy Take Off

- Implement the Requirements for Steady Growth of SASAC, Consolidate and Expand the Results of Improved Quality and Efficiency
- Full Implement the "Double Hundred Enterprises" Comprehensive Reform Implementation Plan
- Ensure that Investment in Science and Technology Research and Development Increases by 26% Year-On-Year, and its Growth Rate Is Higher than the Increase in Operating Income



Ecological Civilization, Help Green Sustainability

- Promote Ultra-Low Emission Retrofit of Clean Thermal Power Plants in the Northern Region, Ultra-Low Emission Units Accounting for Over 96%
- Actively Promote Hydropower Development, Accelerate Breakthroughs in Nuclear Power Development, and Optimize the Development of Clean and Efficient Coal-fired Power Plants
- Carry out Energy Conservation and Consumption Reduction, Promote Integration Application of Energy-Conservation Technologies, and Ensure Leading in the Technical and Economic Indicator Benchmarkings.



Open Cooperation , Enable Value Sharing

- Tighten and Accelerate the Construction of "One Body Two Wings" Internationalization Platform
- Establish Overseas Representative Office as Soon as Possible, Speed up Projects Layout along "Belt & Road" Countries, and Accumulate New Momentum for Internationalization Development
- Actively Participate in Global Energy Governance, and Strengthen Exchanges and Cooperation with IEC and other International Organizations



Human Orientation, Prosper the Country by Enabling talents

- Deepen Implementation of Safety Responsibility System for all Employees, and Carry out Effectively Patrol Inspection and Evaluation of Implementation of the Responsibility System
- Strengthen Unit Maintenance Management and Quality Evaluation and Assessment, and Ensure that the Overall Excellence Rate of Units after Overhaul Maintenance Increase by 2% or More Year on Year.
- Accelerate Science and Technology Leading Talents, Knowledge-Based, Skill-Oriented and Innovative Craftsman Talents, and Internationalized Talent Training



Gratefulness and Contribution, Make Life More Beautiful

- Continuously Carry out Effectively Works on Poverty Alleviation, and Consolidate the Poverty Alleviation Results in Hengshan District of Yulin and Aheqi County
- Comprehensively Promote Poverty Alleviation Work in more than 140 Poverty-stricken Villages across the Country, and Ensure that the Task of Poverty Alleviation will be Completed on Schedule.

Appendix

2018 Corporate Social Responsibility Outstanding Case Selection Results

In January 2019, the company carried out the 2nd outstanding social responsibility case evaluation selection. In order to ensure the quality of the submitted cases, the company standardized the case writing template, optimized the evaluation selection workflow, and improved the case entry criteria. A total of 42 second-level companies participated in the event, and submitted 64 cases, involving various social responsibility issues such as stable development, power supply, environmental protection, safe production, Belt & Road, and targeted poverty alleviation. After the initial review, experts scoring, and two rounds of screening, 15 outstanding cases finally stood out in the finals. In the final stage, the company launched the "China Huaneng Social Responsibility Popularity Project Network Vote" campaign for the whole society. After a week of intense competition, the company finally obtained the results of the excellent social responsibility case selection by voting results.



Scan the QR Code, View China Huaneng 2nd Outstanding Social Responsibility Cases Competition Campaign

Ranking	Case Name	Report Supporting Unit	Case Picture	Case Full Text QR Code Link
1	The "Three Thousand Spirit" Project Helped Compose a New Chapter in Poverty Alleviation of Huhe Village	Huaneng Nuclear Power Development Co., Ltd.	 Huhe Village 140 kW Photovoltaic Power Poverty Alleviation Project	
2	Development and Application Research of DC Side Distributed Energy Storage Technology for Renewable Energy	China Huaneng Group Clean Energy Technology Research Institute Co., Ltd.	 DC Side Distributed Energy Storage System of Golmud Photovoltaic Power Station	
3	Helping the Combat against Poverty Alleviation, Huaneng Coal's Broadless Love Warmed the Hearts of People	Huaneng Coal Industry Co., Ltd.	 Conduct Agriculture and Farming Training for Poverty-stricken Households	

			Case Picture
4	Huaneng Financial Industry Assisted in All-round Targeted Poverty Alleviation	Huaneng Capital Services Co., Ltd.	 The Company Conducted Educational Support Activities
5	Heat Supply Long-distance Transmission Undertook Responsibility for People's Livelihood	China Huaneng Group Co., Ltd. Hebei Branch	 Heat Supply Long-distance Transmission Network Construction Site

Ranking	Case Name	Report Supporting Unit
6	Targeted Poverty Alleviation Never Stopped, Power Plant Assistance Warmed the Heart of People	China Huaneng Group Co., Ltd. Hainan Branch
7	Banning Heat Users Small Coal-Fired Boilers	China Huaneng Group Co., Ltd. Guangxi Branch
8	The Guangdong Branch Gathered Together in Mind and Strength, Successfully Responded to the Super Typhoon "Mangkhut"	Huaneng Renewables Corporation Limited
9	Actively Fulfill Social Responsibility of SOEs, Help the Old Revolutionary Areas Alleviate Poverty and Become Rich	China Huaneng Group Co., Ltd. Shanxi Branch
10	Yuhuan Power Plant's 12 Years of "Preservation" - Introduction of Thermal Power Enterprise Operation Maintenance Quality Supervision Management of Infrastructure Supervision and Inspection Mode	China Huaneng Group Co., Ltd. Zhejiang Branch
11	Understand What You Think, Give What You Need (Two or Three Stories on Targeted Poverty Alleviation)	Huaneng Ningxia Energy Co., Ltd.
12	"Infinite Support (Chuanliubuxi)" Dongliang (Backbone) Project Supporting Aspiration and Wisdom, Eliminating the Root Cause of Poverty	Huaneng Sichuan Hydropower Co., Ltd.
13	18 Times of Putting into Operation a Year, Refreshing the Annual Operation Record of Hydropower Units	Huaneng Lancang River Hydropower Inc.
14	"Winter Supply" One Million Consumption Targeted Poverty Alleviation	Huaneng Xinjiang Energy Development Co., Ltd.
15	Continuously Strengthen Bidding Procurement Risk Management and Control, and Effectively Play a Role of Professional Support	Huaneng Tendering Co., Ltd.

About China Huaneng

China Huaneng Group Co., Ltd. (referred to as China Huaneng) is an important state-owned enterprise established with the approval of the State Council.

China Huaneng has a registered capital of 34.9 billion yuan. Our main businesses are: power development, investment, construction, operation and management, electricity (heat) production and sales, finance, coal, transportation, new energy, environmental protection related industries and product development, investment, construction, production, sales, and industrial investment operation and management.

Established in 1985, China Huaneng has provided rich experience in the reform, development and technological advancement of the power industry in the course of more than 30 years of development; has played a model role in improving the management level and increasing economic efficiency of power companies; and made significant contribution to meeting the demand for electricity for economic and social development and realizing the preservation and appreciation of state-owned assets. China Huaneng is committed to creating a world first-class company with global competitiveness. By the end of 2018, the installed capacity of wholly-owned and controlled power plants at home and abroad had reached 177 GW, and the coal, finance, technology research and development, transportation and other industries that serve the development of the main power industry had begun to take shape.

The company has taken the lead to be enlisted in the rank of Global 500 in China's power generation companies, ranking 289th in 2018.

Organization Structure

Departments of the Headquarters		
General Administration Department (Office of Party Leading Group) ● News Center	Office of the Board of Directors	Planning and Development Department
Department of Budgeting and Comprehensive Planning	Corporate Governance Department	Legal Affairs Department
Marketing Department	Fuel Department	Finance Department
Department of Capital Operation and Equity Management (Asset Disposal Office)	Safety Supervision Department	Department of Production Management and Environmental Protection
Department of Science and Technology Innovation	Engineering Department	Renewables Department
Procurement Management Department	International Cooperation Department ● IEC Chairman's Office	Organization Department of Party Leading Group (Human Resources Department) ● Retiree Affairs Office
Department of Discipline Inspection and Supervision	Tour Inspection Office of Party Leading Group	Auditing Department
Party Building Department	Party Committee for Organs Directly Under CHNG	
Labor Union Working Committee	Logistics Department	
Business Units and Professional Offices		
Power Development Business Unit ● Shale Gas Development and Utilization Office	Nuclear Power Business Unit	
Coal Business Unit ● Coal Chemical Management Office	Overseas Business Unit	
Units Directly under China Huaneng Group		
China Huaneng Group Party School ● Education and Training Center	Technical Economics Research Institute	IT Center

Industrial Companies			
Huaneng International Power Development Corporation ● GreenGen Co., Ltd.	Huaneng Power International Inc.	Huaneng Renewables Corporation Limited	
Huaneng Nuclear Power Development Co., Ltd.	Huaneng Energy and Transportation (Holding) Co., Ltd.	Huaneng Coal Industry Co., Ltd.	
China Huaneng Group Fuel Co., Ltd.	Huaneng Capital Services Co., Ltd.	China Huaneng Finance Co., Ltd.	
China Huaneng Group Clean Energy Technology Research Institute		Huaneng Integrated Industries Company ● Huaneng Properties Co., Ltd.	
China Huaneng Group Hong Kong Limited ● Huaneng Overseas Enterprises Management Co., Ltd		Xi'an Thermal Power Research Institute Co., Ltd ● Huaneng Group Technology Innovation Center	
Regional Branch Companies			
China Huaneng Group Co., Ltd. Xiong'an Branch	China Huaneng Group Co., Ltd. North China Branch	China Huaneng Group Co., Ltd. Northeast China Branch	China Huaneng Group Co., Ltd. East China Branch
China Huaneng Group Co., Ltd. Central China Branch	China Huaneng Group Co., Ltd. South China Branch	China Huaneng Group Co., Ltd. Northwest China Branch	China Huaneng Group Co., Ltd. Hebei Branch
China Huaneng Group Co., Ltd. Shanxi Branch	China Huaneng Group Co., Ltd. Jilin Branch	China Huaneng Group Co., Ltd. Heilongjiang Branch	China Huaneng Group Co., Ltd. Jiangsu Branch
China Huaneng Group Co., Ltd. Zhejiang Branch	China Huaneng Group Co., Ltd. Anhui Branch	China Huaneng Group Co., Ltd. Fujian Branch	China Huaneng Group Co., Ltd. Jiangxi Branch
China Huaneng Group Co., Ltd. Shandong Branch	China Huaneng Group Co., Ltd. Henan Branch	China Huaneng Group Co., Ltd. Hunan Branch	China Huaneng Group Co., Ltd. Guangxi Branch
China Huaneng Group Co., Ltd. Hainan Branch	China Huaneng Group Co., Ltd. Chongqing Branch	China Huaneng Group Co., Ltd. Guizhou Branch	China Huaneng Group Co., Ltd. Yunnan Branch
China Huaneng Group Co., Ltd. Tibet Branch		China Huaneng Group Co., Ltd. Qinghai Branch	
Regional Subsidiaries			
North United Power Co., Ltd.	Huaneng Lancang River Hydropower Inc.	Huaneng Hulunbuir Energy Development Co., Ltd.	
Huaneng Sichuan Hydropower Co., Ltd.	Huaneng Shaanxi Power Generation Co., Ltd.	Huaneng Ningxia Energy Co., Ltd.	
Huaneng Gansu Energy Development Co., Ltd.	Huaneng Tibet YarlungZangbo River Hydroelectric Development Investment Co., Ltd.	Huaneng Xinjiang Energy Development Co., Ltd.	
Companies Directly Managed by China Huaneng Group			
Huaneng Tendering Co., Ltd.		Huaneng Information Technology Co., Ltd.	

Key Performance Table

Safety Responsibility Performance						
Indicator Name	Unit	2014	2015	2016	2017	2018
Major Equipment Accident	Case	0	0	0	0	0
General Equipment Accident	Case	2	2	0	0	0
Accidents of Injury and Death	Case	6	3	4	4	2
First-class Obstacles	Case	40	23	21	15	17
Number of Unplanned Outages	Case	71	63	75	151	184
Unit Equivalent Availability Factor	%	94.52	94.35	94.69	94.19	94.21

Economic Responsibility Performance						
Indicator Name	Unit	2014	2015	2016	2017	2018
Installed Capacity	MW	151490	160630	165540	171820	176570
Thermal Power Installed Capacity	MW	118670	123480	126620	129280	128690
Power Generation	100 GWh	6461	6146	6216	6496	7026
Coal Production Capacity	10,000 Tons/Year	8660	8330	6733	7790	7760
Coal Production	10,000 Tons	7418	6515	6220	7107	7086
Total Assets	100 Million Yuan	9282	9719	10029	10396	10733
Total Operating Income	100 Million Yuan	2921	2682	2461	2607	2786
Total Profit	100 Million Yuan	268	306	139	119	144
Total Number of Scientific and Technical Personnel People	People	2325	1977	2163	2993	1966
National Authorized Patent	Item	166	306	455	541	648
Among them: Invention Patent	Item	27	64	122	199	163
Provincial and Ministerial Level and Above Scientific and Technological Achievements Award	Item	10	21	31	22	21

Environmental Responsibility Performance						
Indicator Name	Unit	2014	2015	2016	2017	2018
Low Carbon Clean Energy Installed Capacity	MW	41000	46190	47970	53250	58580
Low Carbon Clean Energy Proportion	%	27.10	28.80	29.00	31.00	33.18
Power Supply Coal Consumption	g/kWh	310.00	305.78	302.35	300.11	298.72
Plant Electricity Use Rate	%	4.40	4.24	4.11	4.01	3.97
Ash Comprehensive Utilization Rate	%	79.50	77.62	86.21	81.40	76.45
Unit Power Generation Water Consumption	Kg/kWh	1.15	1.04	1.03	1.09	1.04
Hydropower Installed Capacity	MW	20450	20890	21040	22260	26070
Wind Power Installed Capacity	MW	11510	15080	16320	17850	18630
Photovoltaic Installed Capacity	MW	850	1170	1570	2430	3180

Social Responsibility Performance						
Indicator Name	Unit	2014	2015	2016	2017	2018
Paid Taxes	100 Million Yuan	332	357	293	228	255
Number of In-Service Employees	People	139780	140989	143810	138473	135329
Number of Employment Absorbed throughout the Year	People	8687	8413	7051	4754	4475
Number of Female Employees	People	35047	33537	35096	33929	32415
Female Manager Ratio	%	34	32	32	32	38
Labor Contract Signing Rate	%	100	100	100	100	100
Collective Contract Coverage	%	100	100	100	100	100
Social Insurance Coverage	%	100	100	100	100	100
Trade Union Membership Rate	%	100	100	100	100	100
Employee Health Check and Health File Coverage	%	100	100	100	100	100
Training Time Per Employee	Hour	56	58	71	64	85
Employee Training Coverage	%	68	73	70	66	78
Total Amount of Donation	Ten Thousand Yuan	8188	6520	57598	55609	60377
Employee Volunteers	Person-times	71700	76500	80500	80750	80843

Indicator Index

Table of Contents	SDGs	GRI Standard	CASS-CSR4.0	Page
Report Preparation Description		GRI101	P1	Cover II
China Huaneng · Continue to Write the Story of Spring		GRI201203, 205,206,302	P3.2	P01
Declaration of Sustainable Development		GRI102	G1.2	P02
Sustainable Development Model		GRI102	G1.2	P03
Message from Chairman		GRI101	P2	P08
Huaneng Wisdom Significantly Improve Party Building				P10
Huaneng's Borderless Love Continuously Improve People's Livelihood and Well-being	Targets 1,2,3,4	GRI404,405,413	S4.12-4.14	P12
Huaneng Solution Contribute to a Green and Beautiful China	Targets 7,13	GRI301-303,305-307	E2.6-E2.8,E2.11, E2.12,E2.23-E2.25E2.8, E2.11,E2.12,E2.23-E2.25	P14
Huaneng Power Light up "Belt & Road" Initiative	Targets 9,11,17	GRI201-203	M2.4,M3.2	P16
Reform and Innovation Help the Economy Take Off	Guarantee Power Supply	GRI103		P20
	Optimize Industrial Layout	GRI203		P21
	Improve Development Quality	GRI201,203	S1.1,S1.2	P22
	Deepen Scientific and Technological Innovation	GRI201	M2.4-2.7	P24
	Data Documentary · Sharing Reform and Innovation		M2.1,M2.6	P26
	Comments by all Parties · On Reform and Innovation			P27
Ecological Civilization Help Green Sustainability	Improve Environmental Management	GRI102,307	E1.1,E1.9,E2.11,E2.13	P30
	Adjust Energy Structure	GRI301,302,303	E2.2,E2.3,E2.6,S4.12	P30
	Speed up Pollution Prevention	GRI305, 306	E2.6,E2.7,E2.11-E2.13, E2.15,E2.23-E2.25	P32
	Promote Environmental Awareness	GRI304	E3.1,E3.3,E3.4,E3.6	P34
	Data Documentary · Sharing Ecological Civilization	GRI302,305	E2.12,E2.25	P36
	Comments by all Parties · On Ecological Civilization			P37

Table of Contents	SDGs	GRI Standard	CASS-CSR4.0	Page
Open Cooperation Enable Value Sharing	Deeply Cultivate Overseas Markets	GRI203	M3.1,M3.3	P40
	Drive Local Development	GRI201,203	M3.4,M3.6	P42
	Enhance Partnerships	GRI206	M3.4	P44
	Strengthen Responsible Procurement	GRI204,414	M3.7,M3.8,M3.11-M3.13	P45
	Data Documentary · Sharing Openness and Cooperation	GRI203,204,414	M3.9,M3.13	P46
	Comments by All Parties · On Openness and Cooperation			P47
Human Orientation Prosper the Country by Enabling talents	Ensure Safe Production	GRI403	S3.1-S3.3	P50
	Implement Employee Responsibility	GRI401,402,403	S2.2-S2.4,S2.6, S2.9-S2.14,S2.17-S2.18	P53
	Data Documentary · Sharing People Orientation	GRI401,404	S2.10,S2.14,S2.18	P56
	Comments by All Parties · On People Orientation			P57
Gratefulness and Contribution Make Life More Beautiful	Carry out Targeted Poverty Alleviation	GRI411,413	S4.12-S4.14	P60
	Create Brand Public Welfare	GR413	S4.6,S4.9-S4.11	P66
	Data Documentary · Sharing Gratefulness and Contribution	GR413	S4.10-S4.14	P68
	Comments by All Parties · On Gratefulness and Contribution			P69
Corporate Social Responsibility Management	Responsibility Vision	GRI102	G1	P70
	Responsibility Strategy	GRI102,103	G2.1,G2.2,G2.4	P71
	Responsibility System	GRI102	G4.1	P72
	Responsibility Organization	GRI102	G3	P72
	Responsibility Culture		G5	P74
	Responsibility Participation	GRI102	G6	P75
Outlook 2019			A1	P77
2018 Corporate Social Responsibility Outstanding Case Selection Results			G5.2	P78
About China Huaneng		GRI102	P4	P80
Key Performance Table		RI201,302,303, 401,403,404,405	S1.6,S2.1,S2.3,S2.5,S2.11, S2.15,S3.6,S3.7,S4.8,S4.11, M1.6,M1.7,M2.5,M2.6,E2.4, E2.7,E2.10,E2.16	P82
Indicator Index			A5	P84
Rating Report			A4	P86
Feedback			A6	Cover III

Rating Report

2018 Sustainability Report of China Huaneng Group Co., Ltd. Rating Report

Entrusted by China Huaneng Group Co., Ltd., the "China Corporate Social Responsibility Report Rating Expert Committee" selected experts to form a rating group to rate the 2018 Sustainability Report of China Huaneng Group Co., Ltd. (hereinafter referred to as "Report").

I. Basis of Rating

China Corporate Social Responsibility Reporting Guide (CASS-CSR4.0) of the Chinese Academy of Social Sciences and China Corporate Social Responsibility Report Rating Standard (2019) of the China Corporate Social Responsibility Report Rating Expert Committee.

II. Rating Process

1. The rating team reviewed and confirmed the Confirmation of Processability Data of the Corporate Social Responsibility Report and relevant supporting materials submitted by the Report writing group;
2. The rating team evaluated the writing process and content of the Report, and prepared the rating report;
3. The Vice President of the Rating Expert Committee, leader and experts of the rating team jointly signed and reviewed the rating report.

III. Rating Conclusion

Processability (★★★★★)

The company set up a social responsibility management committee, the Party group members, Vice President took control of the overall direction of the report and key nodes, the board of directors was responsible for the final review of the report; the report was positioned to be an important tool that meted the compliance requirements, spreaded the brand image, improved the level of social responsibility management, and constructed a multi-modal reporting system; identified substantive issues through questionnaires, and strengthened the depth of participation of internal and external stakeholders; planned to publish reports on the official website; and presented the report in forms such as PDF format, printed matter, Chinese and English versions, and animated films editions, etc., with excellent process performance.

Materiality (★★★★★)

The Report systematically disclosed key topics for discussion in the power production industry, such as safeguarding power supply, developing green power, safe production, occupational health management, saving energy resources, developing circular economy, reducing "three wastes" emissions, and plant area and surrounding environmental management, etc., the narrative was detailed, with excellent substantive performance.

Integrity (★★★★☆)

From the perspectives of "Reform and Innovation, Help the Economy Take off", "Ecological Civilization, Help Green Sustainability", "Open Cooperation, Enable Value Sharing", "Human Orientation, Prosper the Country by Enabling Talents", "Gratefulness and Contribution, Make Life Beautiful", the main body of the Report disclosed 80.05% of the core indicators of the power production industry, with leading integrity performance.

Balance (★★★★★)

The Report disclosed negative data, such as "major equipment accidents", "general equipment accidents", "personal casualties", "number of first category obstacles" and "number of unplanned outages", and disclosed in detail the cause, process and result of the "staff operation accident of the Hetaoyu Coal Mine outsourcing company of Qingyang Coal Power Co., Ltd.", with excellent balance performance.

Comparability (★★★★★)

The Report disclosed the comparative data for 3 consecutive years of 42 indicators, such as "installed capacity", "power generation", "low-carbon clean energy proportion", "plant electricity rate", "paid tax" and "employment absorbed throughout the year"; and ranked "No. 289 in Global 500", "No. 6 in China Corporate Social Responsibility Development Index 300", "No. 12 in China's Top 50 Coal Production", and other horizontal comparisons, with excellent comparable performance.

Readability (★★★★★)

The Report chapter spreaded in pages, presenting the company's responsibility actions on key issues, outlining the essentials, with strong generality, and strengthening the communication of the report; set up the "Data Documentary · Sharing Reform and Innovation" featured section, demonstrating key performance, which was convenient for readers to quickly grasp the key content, and improved the legibility of the report; the cover and chapter pages adopted large-scale real map that reflected the characteristics of the business, not only highlighting the industry characteristics, but also enhancing the recognition of the report; QR code extension report contents were embedded in many places, enhancing the dissemination and communication of the report, with excellent readability performance.

Innovativeness (★★★★★)

At the beginning of the Report, there set up the following titles: "Huaneng's Wisdom, Significant Improve Party Building", "Huaneng's Broadless Love, Continously Improve People's Livelihood and Well-being", "Huaneng Solution, Contribute to a Green and Beautiful China", and "Huaneng Power, Light up 'Belt & Road' Initiative", focusing on the corporate featured practice of responsibilities, responding to such hot topics as targeted poverty alleviation, ecological civilization, and "Belt & Road" initiatives etc., highlighting the responsibility of SOEs in implementing macroeconomic policies; set up the featured section of "Comments by all Parties · On Reform and Innovation", supporting the effectiveness of the report in the form of stakeholder testimony and strengthening the credibility of the report; took the report preparation as an opportunity, carrying out the "China Huaneng 2018 Social Responsibility Excellent Case Selection", which was conducive to further improving the social responsibility management, with excellent innovative performance.

Overall Rating (★★★★★)

According to the rating team, the 2018 Sustainability Report of China Huaneng Group Co., Ltd. was five-star rating, and was an excellent corporate social responsibility report.

IV. Improvement Suggestions

Enhance disclosure of industry core indicators and improve reporting integrity.

China Huaneng Sustainability Report Received Five-Star Evaluation for the Eighth Consecutive Year



魏紫川
Vice President of Chinese Expert Committee on CSR Report Rating

刘伟英
Leader of the Rating Team

张晓松
Expert of the Rating Team

Process Assessor Ren Jiaojiao Issued On: May 17, 2019



Scan QR Code to View Enterprise Rating Files

Feedback



Dear Readers:

Thank you for reading the 2018 Sustainability Report of China Huaneng Group Co., Ltd.. In order to further improve the work level of the company's social responsibility and report preparation quality, if you have any comments and suggestions, please scan the QR code below and submit it to us online.

