



華潤電力控股有限公司

China Resources Power Holdings Co., Ltd.

StockCode : 836

# Refreshing Life with Green Energy

Sustainable  
Development  
Report  
2017





This year marks the 80th Anniversary of China Resources, and the 16th Anniversary of China Resources Power.

The theme of this report adopts the "four seasons" to line up its contents: **Spring:** Full of green, embodying the pursuit of China Resources Power for fresh and clean environment and natural ecosystem; **Summer:** the sun blazing like a ball of fire, representing the love and care of China Resources Power on the public and the employees; **Autumn:** Fruitful, indicating the focus and excellence of China Resources Power in innovation and reformation and its commitment to share the development results with the shareholders, customers, suppliers and other stakeholders; **Winter:** thick with snow and ice, standing for our responsibility management and practices: small changes add up.

This report adopts "window" elements in its design, representing our wish that green energy will find its way into every family like the sunlight, and that the stakeholders will share our visions and plans through the diversified windows, and go hand in hand with us to create more beautiful seasonal sceneries for the world we live in.



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# About the Report

## Report quality assurance measures

The report was prepared by the office of China Resources Power Holdings Company Limited (“CR Power” or the “Company”). The Company guarantees that the report does not contain any false representation, misleading statement or major omission, and takes responsibility for the accuracy, completeness and balance of the content hereof.

## Information description of the report

This report is the eighth annual sustainable development report issued by CR Power and it covers the period from 1 January 2017 to 31 December 2017 (part of the content is beyond this period). Part of the operational data in this report was sourced from the Company’s annual report, while other data was sourced from the Company’s internal documents and statistical information system. The currency used in the report are all expressed in renminbi (“RMB”) unless otherwise specified as HK dollars (“HKD”).

The report was prepared primarily with reference to the GRI Sustainable Development Reporting Guidelines (G4) issued by the Global Reporting Initiative (GRI), the China CSR Reporting Guidelines (CASS-CSR4.0) issued by the Chinese Academy of Social Sciences, the Environmental, Social and Governance Reporting Guide (HK-ESG) issued by the HKEX, among other standards, and the Social Responsibility Management Approach for China Resources and Social Responsibility Management Standard for CR Power.

## Report boundaries

This report covers China Resources Power Holdings Company Limited and its subsidiaries (see P.19 for organisational structure). In this report, “we”, “the Company” and “CR Power” all refer to “China Resources Power Holdings Company Limited and its subsidiaries”.

We have engaged an independent third party to perform assurance of 13 performance indexes in this report. The scope includes all the operating thermal power plants that are wholly-owned, controlled or managed by CR Power in 2017 (as identified by  $\Delta$  and see P.15 for details).





## Reporting system

The Company's social responsibility is disclosed in three main forms: information about the Company's annual economic responsibility, environmental responsibility and social responsibility via an annual performance report and sustainable development report; the Company's daily information in the special column on the Company's website (<http://www.cr-power.com/duty/zrgl>); and disclosure of the Company's CSR philosophy and innovative practices via the Company's official WeChat Page.

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# Assurance Report



羅兵咸永道

## **Independent practitioner's limited assurance report To the board of directors of China Resources Power Holdings Company Limited**

We have undertaken a limited assurance engagement in respect of the selected sustainability information of China Resources Power Holdings Company Limited (the "Company") listed below and identified with a \* on pages 92 to 94 in the Company's sustainability report for the year ended 31 December 2017 ("the 2017 sustainability report") (the "Identified Sustainability Information").

### *Identified Sustainability Information*

The Identified Sustainability Information for the year ended 31 December 2017 is summarised below:

- Nitrogen oxides (NO<sub>x</sub>) emissions (10,000 tonnes)
- Nitrogen oxides (NO<sub>x</sub>) emission rate (g/kWh)
- Sulphur dioxide (SO<sub>2</sub>) emissions (10,000 tonnes)
- Sulphur dioxide (SO<sub>2</sub>) emission rate (g/kWh)
- Particulates emissions (10,000 tonnes)
- Particulates emission rate (g/kWh)
- Installation rate of desulfurization device in coal-fired thermal power plants (%)
- Installation rate of denitrification device in coal-fired thermal power plants (%)
- Natural gas consumption (Million cubic meters)
- Diesel consumption (Million litres)
- Coal consumption (10,000 tonnes)
- Net generation coal consumption rate (g/kWh)
- Purchased electricity (Million kWh)

Our assurance was with respect to the year ended 31 December 2017 information only and we have not performed any procedures with respect to earlier periods or any other elements included in the 2017 sustainability report and, therefore, do not express any conclusion thereon.

### *Criteria*

The criteria used by the Company to prepare the Identified Sustainability Information is set out in "Note 3" of "Key Performance Index" on pages 92 to 94 of the 2017 sustainability report (the "Criteria").

### *The Company's Responsibility for the Identified Sustainability Information*

The Company is responsible for the preparation of the Identified Sustainability Information in accordance with the Criteria. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of Identified Sustainability Information that is free from material misstatement, whether due to fraud or error.

### *Inherent limitations*

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability between entities.





### *Our Independence and Quality Control*

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### *Our Responsibility*

Our responsibility is to express a limited assurance conclusion on the Identified Sustainability Information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised), *Assurance Engagements other than Audits or Reviews of Historical Financial Information* issued by the International Auditing and Assurance Standards Board. That standard requires that we plan and perform this engagement to obtain limited assurance about whether the Identified Sustainability Information is free from material misstatement.

A limited assurance engagement involves assessing the suitability in the circumstances of the Company's use of the Criteria as the basis for the preparation of the Identified Sustainability Information, assessing the risks of material misstatement of the Identified Sustainability Information whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the Identified Sustainability Information. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Made appropriate inquiries of management of the Company and its subsidiaries;
- Assessed the design of critical process and control for collecting and reporting the Identified Sustainability Information;
- Undertook limited analytical procedures over the Identified Sustainability Information
- Reviewed relevant supporting information and documents for Identified Sustainability Information provided by management; and
- Did not perform any testing on the Continuous Emission Monitoring System of the Company.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether the Company's Identified Sustainability Information has been prepared, in all material respects, in accordance with the Criteria.

### *Limited Assurance Conclusion*

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Company's Identified Sustainability Information for the year ended 31 December 2017 is not prepared, in all material respects, in accordance with the Criteria.

Our report has been prepared for and only for the board of directors of the Company and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the content of this report.

**PricewaterhouseCoopers**  
Certified Public Accountants  
Hong Kong, 8 June 2018



# Chairman's Address



We will continue to cooperate with all stakeholders to create outstanding performance worth the new era, perform the duties and obligations as a corporate citizen and make greater contribution for the sustainable development of the economy, society and environment.

**Li Ru Ge**  
Chairman of the Board,  
China Resources Power

Sustainable development has become a global common concern and goal to strive for. China Resources Power is committed to achieving sustainable development by adhering to our responsibilities towards the society, environment and performance and integrating the social responsibilities into the business development strategies and daily management of the Company, making active contribution to social development and environmental protection, and driving the coordinated and sustainable development of the economy, society and environment, while striving to create excellent performance.

In 2017, by taking multiple measures, we achieved rapid development of clean energy, maintained a leading position in coal power operations, turned losses into gains in coal business, and achieved satisfactory performance in the power retail business, comprehensive energy service and overseas business. Certain wind power and thermal power projects of the Company received awards in the USA and Asia in succession, such as the Best Wind Power Project, the Best Coal-fired Power Plant, the Best Cogeneration Project and the Best Coal-fired Power Technique Upgrading. The Company also won many honorary awards, such as Asian Power Awards, Hong Kong Green Award, and Top 20 Hang Seng Corporates in Hong Kong Business Sustainability Index.

**Performance of economic responsibilities.** In 2017, due to high coal price, the power generation companies in China faced harsh market conditions and experienced significant profit decline. We adjusted the Company's strategy, innovated the business mode, optimized organization management and control, promoted cultural reshaping and improved the organization capacity, thus effectively overcoming the challenges and driving the transformation and development of the Company.

We accelerated our investment and development in wind power, and created a record high in wind power development and grid-connected capacity, and the mix of the overall installed capacity of clean energy increased by 3.3 percentage points to 17.4% as compared with the previous year. We continued to deepen lean operation and benchmarking management. As a result, net generation standard coal consumption rate improved and the annual utilisation hours of thermal power and wind power significantly outperformed the national average. By taking advantage of supply side reform, 24 provincial power retail companies were established by the end of the year and achieved significant growth in power retail business. The 7 power retail companies in Guangdong and Guangxi ranked No.1 in terms of market share for comparable markets (calculated by traded power). We accelerated the elimination of excess capacity in the coal mining segment and shut down 10 mines and eliminated inefficient capacity of 4.8 million tons during the year. As a result, we achieved quality and efficiency improvement in our coal business and turned losses into gains. We explored different types of projects, such as distributed energy, incremental distribution network and multiple energy complementation. Several important projects were put into operation, such as Shanghai MixC gas distributed energy project, Fuyao Intelligent Energy Integrated Service Project. We will continue to seek for more investment opportunities and established a new energy industry fund to carry out M&A opportunities, development and incubation of wind power projects, waste incineration power generation projects, and farming and forestry biomass cogeneration projects.

We accelerated the improvement of the innovation organization and system of the Company, enhanced the scientific and technical innovation capacity, and increased the investment



in scientific and technical R&D. We promoted the construction of benchmarking power plants and smart power plants, implemented the Centralised Supervision & Analysis Specialist System by applying such advanced concepts and technologies as big data and cloud computing, gave a full play to the thermal power operation and fuel value optimization system, and created excellent operation systems, in order to drive the innovation and development of the Company.

**Performance of environmental responsibilities.** With increased attention given to ecological environment, we adhere to the green development philosophy and are committed to conservation of resources and environmental protection. We continuously increased the proportion of the clean energy in our capacity mix and strictly controlled the pace of coal-fired power investment. We did not commission any new coal-fired projects in 2017. We invested about RMB 1.7 billion for energy conservation and emission reduction upgrade and modification of coal-fired units, in order to improve the efficiency and clean power generation level of the units. As a result, the main energy consumption indexes were further improved, and the average net generation standard coal consumption rate for power supply of the Company's subsidiary coal-fired power plants had a year-on-year decline of 1.84g/kWh. We completed the ultra-low emission modification of 6 coal-fired units this year, increasing the total number of ultra-low emission units of the Company to 55 units or 22,792MW, which accounted for 91% of the capacity of the subsidiary coal-fired power plants, well above the industry average. The emission rates of sulfur dioxide, nitrogen oxides and particulates were further reduced. We adjusted measures to local conditions and actively carried out innovation practices, such as mixed burning of municipal waste, sludge and industrial waste, biomass coal-fired generation, in order to solve social and environmental protection difficulties and expand our development space.

For new projects and modification projects, we strictly implemented the national regulations, carried out environment impact assessment, energy conservation and emission reduction evaluation and review, and realized the simultaneous design, construction and commissioning of environmental protection facilities and main projects. During the project construction and operation, we paid attention to the protection of local ecology and minimized the impact to the environment.

**Performance of social responsibilities.** We operated strictly according to laws and regulations, fulfilled the obligations of paying taxes and promoted employment. We enhanced safe production supervision and guarantee system construction, strictly implemented safety responsibility system, continuously carried out hidden hazard controls, risk evaluation and standardization compliance works, and promoted the R&D and application of advanced technologies, such as NOSA five-star management and "Run Extreme Vision" smart safety management and control system, so as to continuously improve the working environment and equipment reliability, consolidate the safety foundation, and ensure the safety of persons and equipment. The investment for safe production amounted to RMB 406 million in the year.

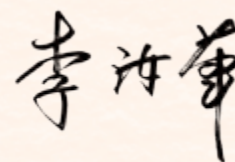
We focused on strategic cooperation, insisted on honesty and trustworthiness, maintained justice and fairness, promoted mutual benefit and win-win cooperation, and encouraged the partners in the value chain to perform social responsibilities by setting examples. We paid attention to the growth, material and cultural needs of the employees, and continuously improved relevant mechanisms for our employees including compensation, performance, training, assistance for those in

difficulty and cultural construction, in order to create an active, dynamic and warm organization environment. We carried out targeted poverty alleviation, assistance with students' education, disaster relief work, local infrastructure construction and volunteer activities, and participated in the Hope Town construction project of China Resources Group in the poverty-stricken areas of China. In 2017, our donations to the society reached approximately RMB 4.7 million.

We focused on keeping communication with stakeholders, disclosed the information on the operation, management, innovation and reform of the Company to the society timely and fairly, and actively organized power plant open-day activities. We invited the government, customers, partners, students, non-governmental organizations, residents and media to visit the power plants and received the scrutiny of the society on the performance of responsibility by the Company, which has become a regular mechanism. In 2017, we exclusively sponsored and cooperated with The Dragon Foundation of Hong Kong to organize 100 outstanding Chinese young individuals from 14 countries and regions around the world to participate in the Dragon 100 charity event of "Vision for a Better Future: Innovation for Sustainable Growth in China", where the young individuals were invited to visit Hong Kong, Shenzhen and Henan to understand the economic and innovative development of China, and they were encouraged to shoulder the responsibility of jointly building the future, driving sustainable development of China through innovation. The 100 young individuals visited China Resources Shouyangshan Power Plant and appreciated the great beauty of the modern power plant of China. The Company and its subsidiaries and affiliates organized more than 100 open-day activities in the year, and more than 5,000 visitors from all walks of life visited our enterprise, rendering great communication results.

This report is our eighth Sustainable Development Report. It systematically disclosed the measures and performance of China Resources Power in performing the economic, environmental and social responsibilities. This report is an effective vehicle for keeping communication with stakeholders. We will continue to work hard, listen to the opinions and suggestions of stakeholders, optimize and improve the preparation and disclosure of our Sustainable Development Report, and further improve the management of social responsibility works, while improving the information disclosure quality, in order to drive the sustainable development of the Company.

Let us set sail for the new journey with the strong drive of the new era! In 2018, faced with new situations, tasks and challenges, we will continue to cooperate with stakeholders, remain true to our original aspiration, keep our mission in mind, face the difficulties, blaze new trails in a pioneering spirit, and make great achievements worthy of the new era with our wisdom and struggle. We will continue to perform our responsibilities as an enterprise citizen, and try our best to make greater contribution to the sustainable development of our economy, society and environment.



June 2018



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# About Us



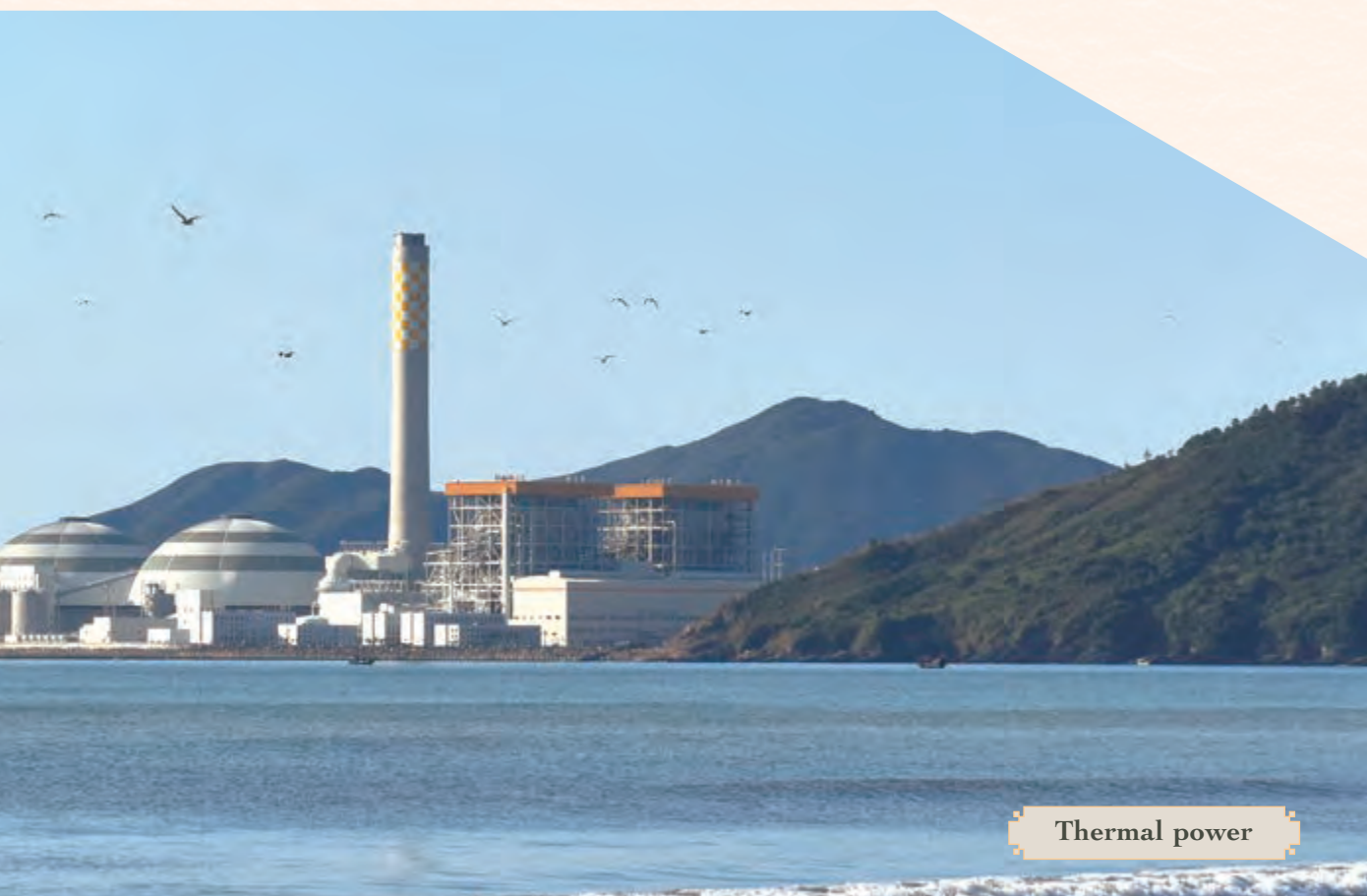
## General Information

China Resources Power Holdings Co., Ltd. ("CR Power") was founded in August 2001 and was listed on the Main Board of the Hong Kong Stock Exchange in November 2003. CR Power was later incorporated as one of the constituent stocks on the Hang Seng Index in June 2009. The Company is a flagship Hong Kong listed company of China Resources (Holdings) Co., Ltd. ("CR Holdings"), and is one of the most efficient integrated energy companies in China. Its business mainly covers thermal power, wind power, hydropower, photovoltaic power generation, distributed energy, power retail and comprehensive energy services and coal.

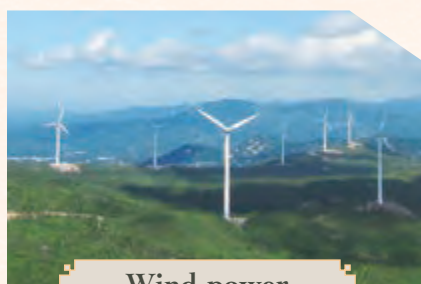
As at the end of 2017, CR Power's total assets amounted to HK\$221.0 billion and our business covered 28 provinces, autonomous regions and municipalities in China. Attributable installed capacity for power generation amounted to 36,077MW. CR Power was elected for the 11th time, one of the Platts Top 250 Global Energy Companies and Global 2000 by Forbes for Largest Public Companies, ranking 71st and 775th respectively.

**Ranking**  
**775<sup>th</sup>**  
**Forbes Global 2000**  
**The World's 2000**  
**Largest Public**  
**Companies**

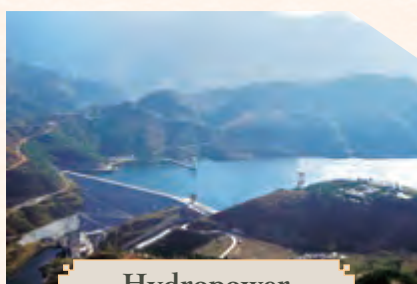
**Ranking**  
**71<sup>st</sup>**  
**Platts Top 250**  
**Global Energy Companies**



Thermal power



Wind power



Hydropower



Photovoltaic power



Distributed energy



Coal





# About Us

## Business Distribution

Our business covers 28 provinces, autonomous regions and municipalities in China including Jiangsu, Guangdong, Henan, Hebei, Liaoning, Shandong, Inner Mongolia, Hubei, Guangxi, Anhui, Hunan, Zhejiang, Yunnan, Sichuan, Gansu, Beijing, Heilongjiang, Shanxi, Guizhou, Ningxia, Jiangxi, Tibet, Qinghai, Shaanxi, Shanghai, Fujian, Chongqing and Jilin.





## Jiangsu

Changshu (3 × 650MW) Δ  
Nanjing Thermal Power (2 × 600MW) Δ  
Tongshan (2 × 1000MW) Δ  
Zhenjiang (2 × 630MW + 2 × 140MW) Δ  
Yangzhou No.2 Plant (2 × 630MW)  
Xuzhou (4 × 320MW) Δ  
Nanjing Chemical Industry  
Park Phase II (2 × 300MW) Δ  
Huaxin (2 × 330MW) Δ  
Nanjing Banqiao (2 × 330MW) Δ  
Changzhou (2 × 630MW)  
Nanjing Chemical Industry Park  
(2 × 55MW) Δ  
Yixing (2 × 60MW) Δ  
Nantong Wind Power (65.5MW)  
Suqian PV Power (20.5MW)

## Guangdong

Guangzhou Thermal Power  
(2 × 300MW) Δ  
Haifeng (2 × 1000MW) Δ  
Chaonan Wind Power (155.9MW)  
Yangjiang Wind Power (89.8MW)  
Huilai Zhoutian Wind Power (50MW)  
Huilai Wind Power (73.5MW)  
Shantou Wind Power (29.3MW)  
Shantou Haojiang Wind Power (18MW)  
Lianzhou Wind Power (140MW)  
Lianzhou Quanshui Wind Power (50MW)  
Yangjiang Wind Power Phase II (45.5MW)  
Xinyi Wind Power (39MW)  
Lufeng Wind Power (66MW)  
Xuwen Wind Power (72MW)  
Haifeng PV Power (4.2MW)  
Yingde PV Power (30MW)

## Henan

Shouyangshan (2 × 600MW) Δ  
Gucheng (2 × 300MW) Δ  
Dengfeng (2 × 320MW + 2 × 600MW) Δ  
Luoyang (2 × 50MW) Δ  
Jiaozuo Longyuan (2 × 660MW) Δ  
Biyang Wind Power (65MW)  
Biyang Zhongxiang Wind Power (53MW)  
Biyang Pangu Wind Power (49MW)

## Hebei

Cangzhou (2 × 330MW) Δ  
Caofeidian (2 × 300MW) Δ  
Hengfeng (2 × 300MW)  
Hengxing (2 × 300MW)  
Tangshan Fengrun (2 × 350MW) Δ  
Bohai New Area (2 × 350MW) Δ  
Chengde Wind Power (48MW)  
Chengde Weichang Wind Power (46.5MW)  
Chengde Yudaokou (151.5MW)

## Liaoning

Shenhai Thermal Power (3 × 200MW) Δ  
Panjin (2 × 350MW) Δ  
Fuxin Wind Power (99MW)  
Jianping Wind Power (99MW)  
Beipiao Wind Power (198.1MW)  
Fuxin Wind Power Phase II (49.5MW)  
Linghai Wind Power (90MW)  
Jinzhou Wind Power (48MW)

## Shandong

Heze (2 × 600MW) Δ  
Weihai Wind Power (49.8MW)  
Weihai Huancui Wind Power (49.8MW)  
Daliuhang Wind Power (49.8MW)  
Daxindian Wind Power (49.8MW)  
Yantai Wind Power (48MW)  
Yantai Penglai Wind Power (46.6MW)  
Qingdao Wind Power Phase I (49.8MW)  
Qingdao Wind Power Phase II (50MW)  
Jining Wind Power (49.5MW)  
Juxian Wind Power (100MW)  
Wulian Wind Power (100MW)  
Rizhao Wind Power (48.6MW)  
Zoucheng Wind Power (44MW)  
Linyi Wind Power (78MW)  
Dongying Wind Power (100MW)  
Haiyang Wind Power (90MW)

## Inner Mongolia

Dengkou (2 × 300MW) Δ  
Bayinxile Wind Power (99MW)  
Manchuria Wind Power (49.5MW)  
Ulanqab Wind Power (49.5MW)  
Ulanqab Bayin Wind Power (49.5MW)  
Ulanqab Hongmu Wind Power (49.5MW)  
Manchuria Wind Power Phase II (49.5MW)

## Hubei

Hubei (2 × 300MW) Δ  
Hubei Phase II (2 × 1000MW) Δ  
Yichang (2 × 350MW) Δ  
Suizhou Wind Power (76.8MW)  
Suizhou Fengming Wind Power (49.5MW)  
Suixian Tianheku Wind Power (220.5MW)  
Zaoyang Wind Power (99.5MW)  
Guangshui Wind Power (110MW)  
Yichang Wind Power (50MW)  
Zaoyang Bailu Wind Power (20MW)

## Guangxi

Hezhou (2 × 1000MW) Δ  
Rongxian Wind Power (86MW)  
Hezhou PV Power (6MW)

## Anhui

Fuyang (2 × 640MW) Δ  
Huaibei PV Power (5.9MW)

## Hunan

Liyujing A (2 × 300MW) Δ  
Liyujing B (2 × 650MW) Δ  
Lianyuan (2 × 300MW) Δ  
Linwu Wind Power (68MW)  
Hunan Coal

## Zhejiang

Wenzhou Telulai (2 × 300MW)  
Cangnan (2 × 1000MW) Δ  
Cangnan PV Power (12.6MW)

## Yunnan

Red River Hydropower (210MW)  
Zhaotong PV Power (20MW)  
Midu PV Power (20MW)

## Sichuan

Yazuihe Hydropower (260MW)

## Gansu

Guazhou Wind Power (201MW)  
Huanxian Wind Power (50MW)

## Beijing

Beijing Thermal Power (2 × 75MW) Δ

## Heilongjiang

Jiamusi Jianshan Wind Power (43.5MW)  
Fujin Wind Power (50MW)  
Tailai PV Power (20MW)  
Anda PV Power (29MW)

## Shanxi

Datong Guangling Wind Power (50MW)  
Datong Yanggao Wind Power (49.5MW)  
Datong Shengquan Wind Power (50MW)  
Datong Changcheng Wind Power  
(49.5MW)  
Datong Wind Power (198MW)  
Linfen Wind Power (99MW)  
Xinzhou Wind Power (120MW)  
Guxian Wind Power (19.5MW)  
Tianzhen PV Power (20MW)  
Xinrong PV Power (50MW)  
Shanxi China Resources  
Taiyuan China Resources  
China Resources Liansheng  
China Resources Daning

## Guizhou

Guizhou Liuzhi (2 × 660MW) Δ  
Liping Wind Power (112MW)  
Jinping Wind Power (32MW)  
Jianhe Wind Power (40.5MW)

## Ningxia

Haiyuan Wind Power (300MW)

## Jiangxi

De'an Wind Power (48MW)

## Tibet

Jiangzi PV Power (20MW)

## Qinghai

Delingha PV Power (20MW)

## Shaanxi

Baoji Wind Power (100MW)

## Shanghai

Shanghai Gas (2.4MW) Δ

■ Operating Power Plants  
■ Productive coal mines

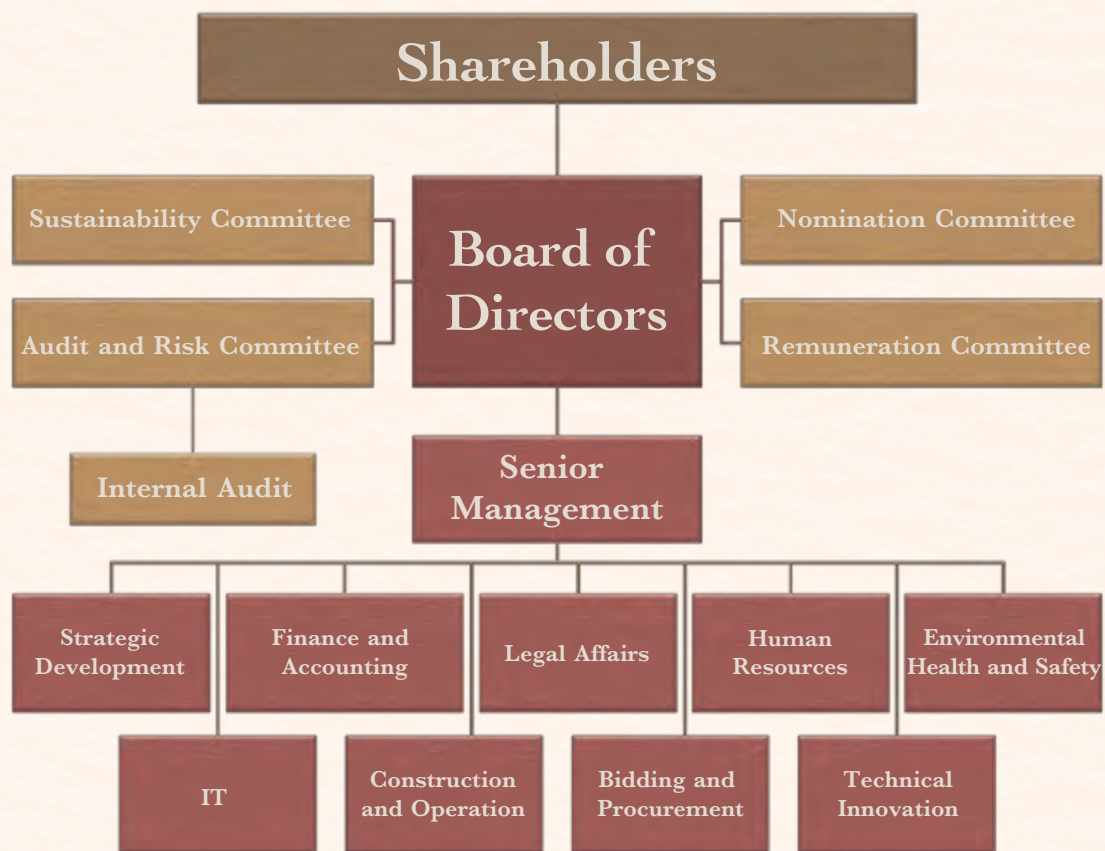
# About Us

## Corporate Governance

The Board of Directors of CR Power (the “Board”) is the ultimate decision-making body responsible for improving the Company’s management systems and maintaining high-level governance standards. The Board takes ultimate responsibility for the Company’s strategic planning, business operations and business performance.

The Board administers the Audit and Risk Committee, Nomination Committee, Remuneration Committee and Sustainability Committee, with 10 directors in total including 3 executive directors, 3 non-executive directors, and 4 independent non-executive directors. There are 2 female directors who account for 20% of the total number of directors. The independent non-executive directors serve as chairpersons of the Sustainability Committee, Audit and Risk Committee and Remuneration Committee, the non-executive director serves as chairperson of the Nomination Committee and they report to the Board of Directors regularly to give advice on matters under discussion. In 2017, a total of 12 meetings were held by the Board of Directors.

## Governance Structure





## Board of Directors



**Mr. Li Ru Ge**  
Non-executive Director  
Chairman of the Board



**Mr. Chen Ying**  
Non-executive Director



**Mr. Wang Yan**  
Non-executive Director



**Mr. Ge Changxin**  
Executive Director  
Vice-Chairman of the Board



**Mr. Hu Min**  
Executive Director  
President



**Ms. Wang Xiao Bin**  
Executive Director  
Chief Financial Officer &  
Corporate Secretary



**Mr. Andrew Ma  
Chiu-Cheung**  
Independent  
Non-executive Director



**Ms. Elsie Leung  
Oi-sie**  
Independent  
Non-executive Director



**Mr. Raymond Ch'ien  
Kuo Fung**  
Independent  
Non-executive Director



**Mr. Jack So Chak  
Kwong**  
Independent  
Non-executive Director



# About Us

## Senior Management



**Mr. Hu Min**  
President



**Mr. Ge Changxin**  
Senior Vice President and  
Chairman of China Resources  
Coal Holding Co., Ltd.



**Ms. Wang Xiao Bin**  
Chief Financial Officer



**Mr. Jiang Lihui**  
Senior Vice President



**Mr. Jian Yi**  
Senior Vice President



**Mr. Zhu Guolin**  
Senior Vice President  
and Financial Controller



**Mr. Ding Qi**  
Vice President



**Mr. Wang Gaoqiang**  
Vice President and Audit  
Controller



**Mr. Ding Yuankui**  
Vice President



**Mr. Zhao Houchang**  
Vice President



**Mr. Wang Lin**  
Vice President



**Mr. Hou Yongjie**  
Vice President



**Mr. An Xing**  
Assistant President and  
IT Director



**Mr. Zhang Gang**  
Assistant President and  
General Legal Counsel

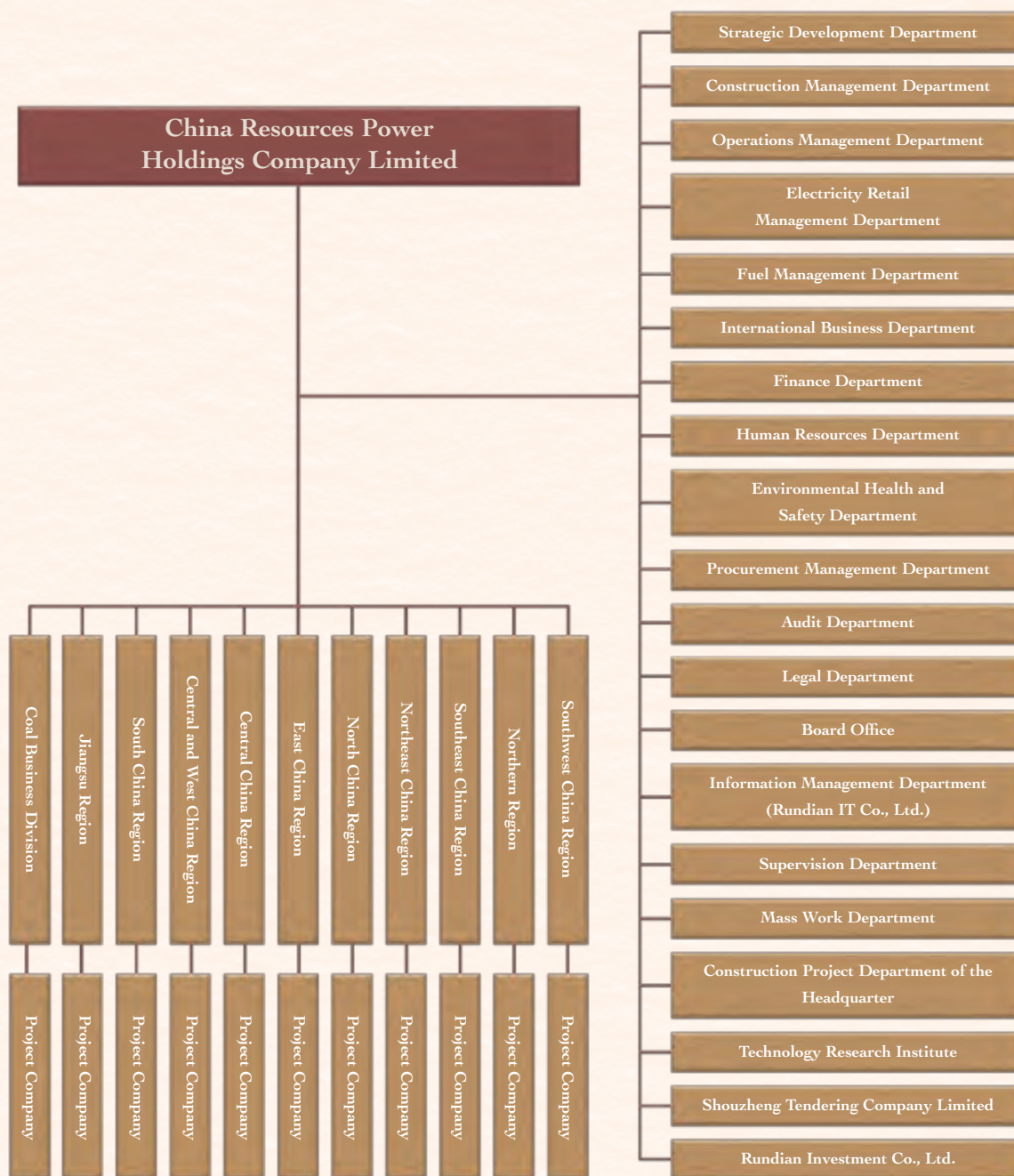


**Mr. Xu Hongbo**  
Assistant President and  
General Manager of the  
Strategic Development  
Department



## Organizational Structure

The Company implemented a three-tier management and control structure of “Headquarters + Region + Project Company”.





## About Us

### 10 Key Milestones in 2017

#### ONE

Grid-connected wind power capacity exceeded 6,000 MW

Newly added grid-connected wind power capacity of CR Power exceeded 1,000 MW for the first time, with its total grid-connected wind power capacity exceeding 6,000 MW. This was the effective result of vigorously developing clean energy and accelerating the promotion of wind power development and construction. Furthermore, this serves as a valuable lesson and lays a solid foundation for all regions to achieve clean energy development goals set for 2018 and by the "13th Five-year" plan.

#### TWO

The newly implemented management and control model for new energy operations centralised operation and maintenance

Seven regions including South China Region, Northern Region, East China Region, Northeast China Region, Central China Region and North China Region all implemented centralized operation and maintenance for new energy. Resources, management and work were subsequently also centralised, and the number of machines operated by each production staff member was increased from 2.85 to 4.23, improving operation management efficiency and employee satisfaction.

#### THREE

The Company's technology research institute was initially established

The Company's technology research institute consists of the following six institutions: Shenzhen Zhirun New Energy Power Survey and Design Co., Ltd., big data centre, new energy resources centre, distributed energy and intelligent micro-grid research centre, Rundian Energy Science and Technology Co., Ltd. and Chuxin Intellectual Property Management Co., Ltd. initially establishing an effective technological support for new energy and coal power businesses.

#### FOUR

Power retail business recorded rapid development

As at the end of 2017, the Company had established 24 regional power retail companies, covering 75% of the area of the country. Regional power retail companies in 13 regions including Guangdong and Henan were already operating in the market, among which 7 companies announced electricity trading results, with volume of electricity traded ranking first in the respective markets. In the meantime, internal synergy among China Resources Group's businesses was promoted, achieving internal synergy of 2.85 billion kWh in 2017. In addition, strategic partnership agreements were signed with various large energy users nationwide, creating considerable partnership potential in areas including power retail business and comprehensive energy.

#### FIVE

Exceeded the annual target for handling excess capacity of coal

As at the end of 2017, the Company closed a total of 19 coal mines and reduced excess production capacity by 7.54 million tons per year, all passing the acceptance by SASAC and reducing 106% of the excess capacity as required by the plan. In addition, employee structure was optimised, employee professional skills were improved, labour cost in coal business was reduced by 13% and labour efficiency was improved by 23% compared to 2016.

#### SIX

Established CR Power New Energy Industry Fund

Following careful preparation and rapid promotion in one year's time, the first industry fund initiated by the Company, namely Guangdong Run Chuang New Energy Shares Investment Fund Partnership (Limited Partnership), was incorporated, with a total fund size of RMB3 billion on January 20, 2018. The fund will carry out mergers and acquisitions, development and incubation of projects including wind power, waste incineration power generation, co-generation of agroforestry as well as biomass and energy efficiency services and high tech.

#### SEVEN

Acquired equity interest in Dudgeon's offshore wind farm in the UK

On December 19, the Company successfully acquired part of the equity interest in Dudgeon's offshore wind farm in the UK under the Norwegian energy company, Statkraft. The offshore wind farm is located 30 kilometres off the coast of the East of England, with 67 Siemens 6 MW direct drive wind turbines and a total installed capacity of 402 MW, making it the sixth largest offshore wind farm in the world.

#### EIGHT

Achieved remarkable results in reversing the loss-making position of the coal mining segment into profits

In 2017, the Company achieved remarkable results in dealing with distressed and loss-making companies in coal business. A total of 15 such companies were dealt with during the year, fulfilling 167% of the plan. In the meantime, the Company continued to carry out promoting lean operations, improving quality and efficiency, reducing excess capacity, trimming down, revitalising assets and optimising inventory and incremental work, and fully turned losses into profits, with an annual operating income and operating net cash flow up by 53.8% and 344.2% year on year respectively, reversing the loss-making position that started in 2013.

#### NINE

CR Power won multiple international and regional awards

The Company won five awards of the 2017 Asian Power Awards including "Best Power Utility of the Year in China", "Best Independent Power Producer of the Year in China" and "Best Environmental Upgrade Project in China". At the award ceremony of Hong Kong Green Awards 2017 held by the Green Council of Hong Kong, the Company and its subsidiaries were presented 18 awards including "Corporate Green Governance Award - Management System Award", "Environmental, Health and Safety Award - Platinum Award" and "Green Management Award - Silver Award", becoming the enterprise winning the most and the best awards of the year. At the 30th POWER-GEN International event, CR Power's Haiyuan Xihuashan Wind Farm was awarded "the World's Best Wind Power Project of the Year Award", while its Hezhou Power Plant and Cangzhou Power Plant ranked second for "the World's Best Coal-Fired Power Plant of the Year Award" and "the World's Best CHP Project of the Year Award".

#### TEN

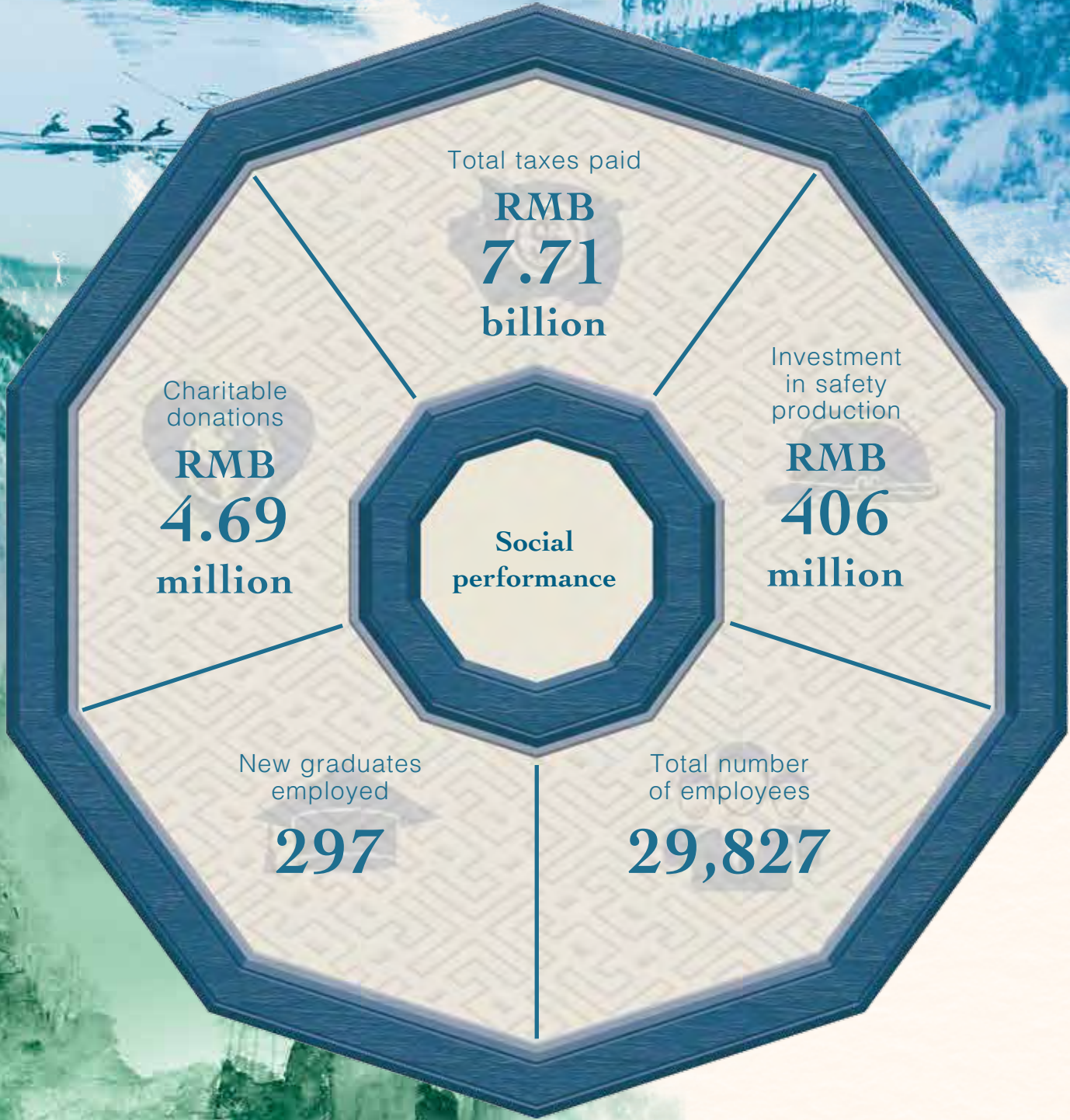
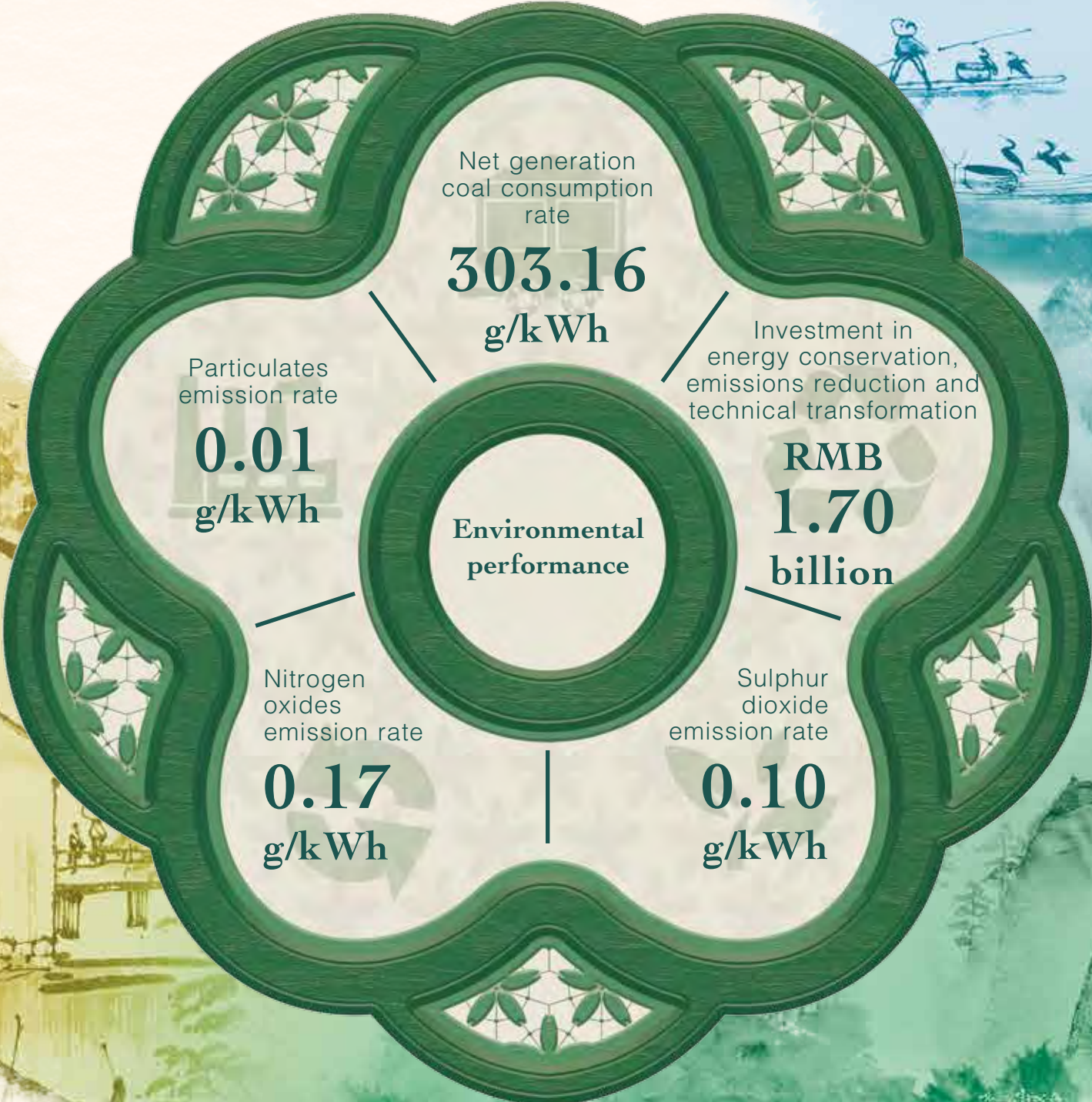
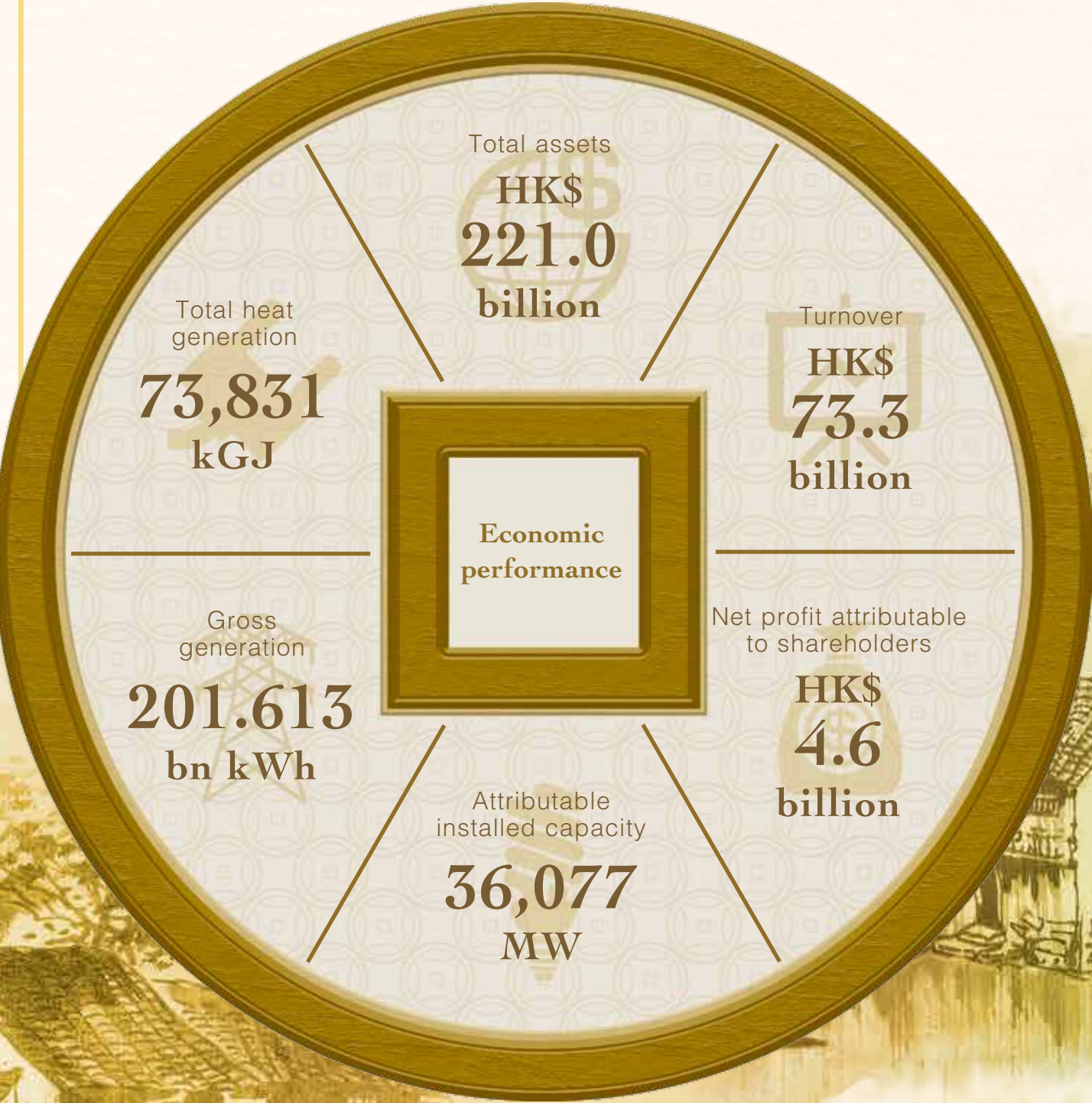
Three companies were awarded the title of "six-star benchmarking plants" by the Group

In 2017, China Resources Group promoted the establishment of the excellent operating system by reviewing and selecting "six-star" benchmarking plants. The Company's Tongshan Power Plant, Shouyangshan Power Plant and Pingdu Longxin Wind Farm were recognized as the first batch of "six-star" benchmarking plants by the Group. CR Power ranked first among all Strategic Business Units in terms of the number of plants recognized. This is attributable to the fact that since 2015, the Company had carried out thorough policy management and benchmarking management through the establishment of benchmarking power plants, bringing lean management to all business areas of production and operation management activities and creating a batch of demonstrative, advanced and representative power plants with leading indicators, performance and management.



About Us

A Glimpse of KPIs









# SPRING

## ENVIRONMENTAL PERFORMANCE

*Flowers on the banks in sunrise redder than fire  
Water in the river in spring greener than grass*

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# Environmental Performance

As the foundation for human being's survival and development, the environment is receiving unprecedented attention. CR Power has always upheld the concept of green development, strictly followed the government's energy strategies, endeavoured to save resources and protect the environment, accelerated clean energy development, deepened energy saving reform, enhanced resource utilisation efficiency, protected and improved the ecological environment as well as continuously explored innovation in emission reduction technology and joint sustainable development between the Company and the environment.

## Accelerate the Development of Clean Energy

In 2017, we further increased investment in the development of renewable energy and insisted on attaching importance to both quality and size. In addition, we took the following measures, including carrying out innovation in the development model, improving stock efficiency, adopting centralised and distributed management, and implementing mergers and acquisitions, so as to continuously increase the percentage of clean energy installed capacity. As at the end of 2017, the Company's total attributable installed capacity in clean energy including wind power, hydropower, photovoltaic power and gas power reached 6,263MW, accounting for 17.4% of the Company's total, up by 3.3 percentage points compared to last year.

### Wind Power

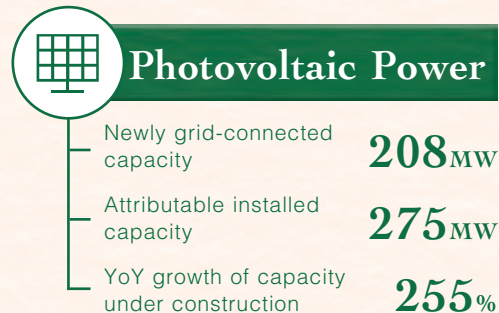
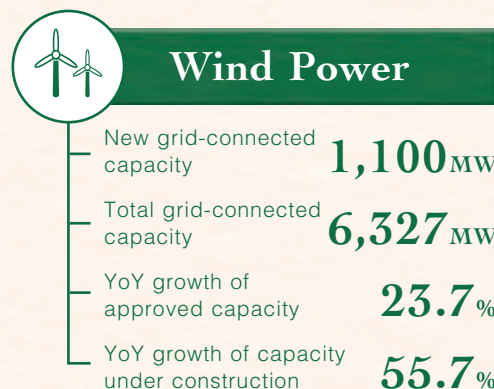
We mainly focus on establishing and operating onshore wind farms in areas with better market consumption and quality wind resources including Guangdong, Shandong, Hubei and Henan as well as areas along the UHV lines including Inner Mongolia to build wind power bases of more than 1,000 MW. In 2017, the Company put into operation 1,010MW of wind power and as at the end of 2017, the Company recorded an attributable installed capacity of 5,629 MW of wind power, of which Shandong became the first province where CR Power recorded over 1,000 MW installed capacity in wind power. We also commissioned wind farms in Anhui, Shaanxi, Qinghai and other regions for the first time.

### Photovoltaic Power

We focus on areas with good solar power resources and low curtailment to develop photovoltaic power projects centred on ground stations and supported by distributed stations. In 2017, the Company put into operation 145 MW of newly commissioned photovoltaic power.

### Distributed Energy

We focus on load centres in Central, East and South China and actively develop distributed energy projects. In 2017, Shanghai MixC 2.4MW gas distributed energy project was put into operation and the first batch of 11 MW distributed photovoltaic power project of Fuyao Intelligent Energy Project was grid-connected.



Shanghai MixC gas distributed energy project





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Story

### CR Power's eagles on the Inner Mongolian Plateau

The magnificent Gobi Desert has treasures on its snow plateau! On December 29, 2017, CR Power's Da Qaidam 50 MW wind power project located in Haixi Mongol and Tibetan Autonomous Prefecture of Qinghai province was connected to the grid. The construction of the project lasted 92 days, creating a new benchmarking construction period in the history of CR Power's wind power projects and setting a new record for the construction period of wind power projects in the same area and capacity in Qinghai province.

With Kunlun Mountain in the South and Qilian Mountain in the North, there is no one within 800 miles. Da Qaidam wind power project, located at Qaidam Basin in the Northeast of Qinghai-Tibetan Plateau, is the achievement made under CR Power's practice of green development concept and its joint efforts with Qinghai provincial party committee and government. It is also the Company's first wind power project in Qinghai.

Since the commencement of the project's construction, the construction team worked on the hundreds of miles of Gobi where there was no soul to be seen, taming the desert under a construction environment of high altitude, extreme cold and oxygen deficiency and construction conditions with lack of water and electricity and with no communications signal. No water source? The team made simple-to-use water containers and heaters; insufficient fresh vegetables? The team had carrots and potatoes for days in a row; insufficient construction materials for living areas? The team dug the ground and made rooms...The team worked day and night to make every minute and second count, finally finishing the task within just 92 days and setting a shining example for Haixi prefecture in the creation of 10,000 MW new energy industry bases.



The project was approved by Haixi Prefecture Energy Bureau on September 28, 2016, the construction of the project began on September 28, 2017, and the project was connected to the grid on December 29 of the same year. In total, 25.2 MW wind turbines were installed, providing 106.7 million kWh of clean electricity a year to Haixi prefecture after being put into operation. This plays an active role in improving regional energy structure, protecting plateau ecological environment, promoting local economic growth and improving livelihood.

When carrying out research in Qinghai, President Xi Jinping pointed out that "For Qinghai, ecology is where its biggest value, responsibility and potential are." Our windmills are standing against wind and spreading their wings like eagles on Qinghai-Tibetan Plateau, sharing the green energy gifted by the vast and magnificent snow-covered plateau with the locals.



# Environmental Performance

## Tap the Potential of Energy Saving and Consumption Reduction to the Fullest Extent

We stepped up efforts in the R&D and application of energy saving technology innovations and deepened energy saving and consumption reduction potential to increase unit efficiency. In 2017, we formulated and issued Supervision Standards for Energy-saving of Thermal Plant Coal-fired Unit and Guidelines for Improvement of Power Generation Efficiency of Wind Power Unit and other systems. During the year, the Company invested a total of RMB 776 million in energy saving retrofitting, up by 0.41% year on year; the Company's subsidiary coal-fired power plants recorded average coal consumption rate for power generation of 303.16 g/kWh, down by 1.84 g/kWh year on year.

Performance Index	Unit	2013	2014	2015	2016	2017
Energy consumption per RMB 10,000 industrial added value	Ton of standard coal	11.79	10.79	9.81	11.61	<b>15.12</b>
Water consumption per RMB 10,000 industrial added value	Ton	133.72	128.68	96.51	108.25	<b>159.38</b>
Net generation coal consumption rate (subsidiary power plants)	g/kWh	315.19	310.53	306.98	305.00	<b>303.16</b>
Power consumption rate of power plants	%	5.21	5.04	5.00	4.95	<b>4.99</b>
Power consumption rate of factories	%	5.97	5.86	5.79	5.75	<b>5.67</b>



During unit maintenance period, CR Power Bohai New Area Power Plant installed a WalsnCEA-828 fuel efficiency analyser in front of each flue AIG of No.1 boiler so as to ensure the economic feature of burning by maintaining appropriate CO content, thus reducing its net generation standard coal consumption rate by approximately 0.30 g/kWh and saving approximately RMB 767,100 a year.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Accelerate the Progress towards Ultra-low Emission

In 2017, we invested a total of RMB 1.181 billion in the retrofitting of environmental protection and completed ultra-low emission retrofitting of 6 coal-fired units. As at 31 December 2017, 55 units (a total of 22,792 MW attributable installed capacity) of the Company realised ultra-low emission, accounting for 91% of the attributable installed capacity of its subsidiary coal-fired power plants, which is significantly above the average level in the industry and further improved the main emission indicators. In 2017, the total emission and emission rate of sulphur dioxide, nitrogen oxides and particulates and the emission intensity of carbon for power generation decreased year on year.

Performance Index	Unit	2013	2014	2015	2016	2017
Particulates emission rate	g/kWh	0.14	0.07	0.04	0.02	<b>0.01</b>
Sulphur dioxide emission rate	g/kWh	0.43	0.32	0.20	0.13	<b>0.10</b>
Nitrogen oxides emission rate	g/kWh	0.96	0.51	0.26	0.20	<b>0.17</b>



In response to the requirements of the government's sewage discharge permit system, we proactively pushed forward the application of sewage discharge permits. The Company's subsidiary power plants including Yichang Power Plant in Hubei, Guangzhou Thermal Plant, Shenyang Thermal Plant and Beijing Xiexin Thermal Plant were all granted the first city-level sewage discharge permits, meeting the requirements for sewage discharge with permits and according to permits, legal compliance and information disclosure.



On September 12, 2017, China Resources Power Haifeng Power Plant put into force its carbon collection, utilisation and storage technology (CCUS) testing platform, which was constructed with the support of the plant's No.1 1,000 MW ultra-supercritical coal-fired power generation unit and consisted of flue gas pre-treatment system, carbon capture system with amine absorption and membrane separation methods, compression and purification system as well as supporting auxiliary systems in areas including electrical and thermal control. The platform is expected to be completed and put into operation in early 2019. After its completion, the platform will become a leading demonstrative platform in the world providing simultaneous verification by using multiple power plant technologies, which will play an active role in reducing global carbon emission and addressing climate change.



# Environmental Performance

## Story

### Ultra-low emission retrofitting of six units in Xuzhou/Tongshan Power Plant was completed

If you walk into Xuzhou/Tongshan Power Plant in Jiangsu, you will find yourself standing inside a garden-like power plant where green grass is soft like carpets and fresh flowers are waving. The blue sky, beautiful environment and fresh air have changed the stereotyped image people have of coal-fired power plants.

On December 1, 2017, the ultra-low emission retrofitting project of Xuzhou/Tongshan Power Plant's No.4 unit was successfully reviewed and accepted onsite by the Jiangsu Environmental Bureau. The power plant's six coal-fired units have all completed retrofitting for ultra-low emission.

In 2014, in response to the government's plan to deepen energy structure adjustment and requirements of new environmental policies, Xuzhou/Tongshan Power Plant took the initiative to create a "green China Resources" that brings clean coal power. In the past three years, Xuzhou/Tongshan Power Plant carried out the ultra-low emission retrofitting of its six units during A- and B-level maintenance. In face of the challenges of multiple retrofitting and maintenance projects, involving multiple parties and multiple operations, the power plant made careful deployment and preparations. The EHS department strictly controlled the entry of personnel from external parties, reviewed their qualifications, special operations certificates and personnel insurance status, carried out strict entry training exams as well as onsite supervisions. The power generation department and maintenance team strictly carried out "two tickets and three systems", implemented onsite safety measures and tracked the whole process. Protection system personnel of the technology support department carried out thorough control of project areas including safety, project period and quality. In addition, they also implemented the system where personnel on one post took up double responsibilities and clarified the principle of "safety management comes before production management", effectively ensuring the safety, quality and project period of the retrofitting project. With the joint efforts of the whole plant, the power plant successfully completed the ultra-low emission retrofitting of its six units which all passed the 168-hour trial runs at one go as well as environmental protection acceptance.



Particulate removal facilities of no. 4 unit after ultra-low emission retrofitting

Following the ultra-low emission retrofitting, Xuzhou/Tongshan Power Plant's six units all met the ultra-low emission standards, reducing the emission of sulphur dioxide by 3,335 tons, nitrogen oxides by 2,335 tons and particulates by 976 tons (80% of the total) per year on average, effectively improving regional air quality, making great contribution to the reduction of PM2.5, producing good environmental benefits and receiving recognition and acclaim from local residents.



Ultra-low emission retrofitting site (hoisting operation of spray mother tube)



Hoisting operation of absorption tower retrofitting





**Environmental  
Responsibilities**



**Social  
Responsibilities**



**Market  
Responsibilities**



**Responsibility  
Management**

## Story

### Working Hard for a Blue Sky

"I've witnessed the speed of China Resources. The duration from bringing up the proposal to obtaining approvals regarding the low-pressure cylinder light-changing shaft of the No.1 unit steam turbine only took 20 days. Furthermore, with efficient deployment and accurate construction, they only took 2.5 months to complete the retrofitting work and the construction of the first station for supporting heat network, increasing areas covered by heating and making important contribution to the smooth promotion of Panjin's 'Blue Sky Project'."



**Jin Li**

Deputy director of Panjin's heating supply  
management office



Retrofitting construction site of the first station for  
heat network



Retrofitting construction site of the low-pressure cylinder light-  
changing shaft of No.1 unit steam turbine

In 2013, Panjin, Liaoning released its Panjin "Blue Sky Project" Implementation Scheme, introducing the project to implement regional unified efficient heating supply to speed up the promotion of "dismantling small ones and merging big ones". The project focused on promoting the heating supply construction of CR Power's Panjin Power Plant with an aim to increase thermal power co-generation efficiency, realise central heating in main districts and replace coal-fired heating supply boilers in certain areas so as to maximise emission reduction benefits.

However, Panjin Power Plant already reached the limits by providing heating supply for 13.5 million square metres in 2016, and could not meet the implementation requirements of the "Blue Sky Project". Faced with the bottleneck, the power plant did not retreat, knowing that it was their responsibility to ensure heating supply and protect the blue sky. Following proactive communication, research in many areas and collaboration with experts from Northeast China Region and the headquarters, the power plant took 20 days to decide on the proposal regarding the low-pressure cylinder light-changing shaft of No.1 unit steam turbine. Due to the long supply cycle of main equipment for light shaft retrofitting of the unit, the effective construction time was greatly shortened; the construction of the first station for supporting heat network was also carried out in the rain season with underground water level rising quickly, making the geological conditions even worse and significantly increasing the difficulty in construction. Again, Panjin Power Plant did not hide behind the difficulties. Instead, to provide heating on November 1 as planned, they worked in shifts, strengthened their communication and collaboration with the construction



company and equipment manufacturers, and thoroughly managed and controlled the project in the areas including safety, quality and progress. They worked over time and spared no efforts, eventually completing the time- and energy-consuming retrofitting project in only 2.5 months.

The retrofitting results were proven after a short while. During the heating supply season of 2017-2018, the area for which Panjin Power Plant supplied heating increased to 21 million square metres, up by 55.6%. The percentage of complaints made through the mayor hotline on heating supply by Panjin Power Plant decreased by 35% compared to the heating supply season in 2016-2017, while the percentage of complaints made through www.mxwz.com went down by 85%, with 100% of the complaints resolved. With the significant improvement of heating supply quality, the power plant won the honourable title "Excellent Heating Supply Company in Liaoning Province" for the second consecutive year.

The retrofitting project of the low-pressure cylinder light-changing shaft of Panjin Power Plant's No.1 unit steam turbine effectively supported the local government in replacing coal-fired heating supply boilers within the city, saving approximately 110,000 tons of standard coal as well as reducing 286,000 tons of carbon dioxide emission, 935 tons of sulphur dioxide emission and 814 tons of nitrogen oxides every year. This greatly increased the clean heating supply area and the quality of heating supply in Panjin, making outstanding contribution to realising efficient clean heating supply and eventually bringing the blue sky back to Panjin.





# Environmental Performance

## Comprehensive Utilisation of Innovative Resources

We combine responsibility and innovation, participate in disposal of social waste, and exploit methods to utilise waste from coal-fired boilers, so as to realise harmless waste disposal and transform waste into resources with less waste generated by using technology including biomass coupling and drying. This will increase resource utilisation efficiency while reducing burden and pollution to the environment, thus achieving a win-win situation between social responsibility and corporate performance.

### Story

## Sludge “cleaner” in the Greater Bay Area of Guangdong, Hong Kong and Macau

“Guangzhou CR Thermal Plant actively carried out the treatment of solid wastes and rubbish, which optimised resource allocation, solved the sludge issue for Guangzhou city and set an example for establishing collaboration between a state-owned company and the local government, as well as making contribution to environmental protection in Guangzhou.”

Relevant person in charge at  
Guangzhou Sewage Purification  
Company

Guangzhou China Resources Thermal Plant is located in the beautiful city of Guangzhou. As the economy rapidly develops and the living standard continuously improves, the amount of sludge continues to increase in Guangzhou. As estimated by the relevant environmental protection department, Guangzhou sewage plants are expected to produce 3,000 tons of sludge containing 80% of water every day by 2020, covering an area the size of 200 football fields, severely affecting Guangzhou's image as an international metropolitan city. Treating such sludge without causing harm has become an issue for the relevant environmental protection offices in Guangzhou and has received attention from all walks of life.

In the meantime, policies including 13th Five-Year Plan's Comprehensive Energy Saving and Emission Reduction Work Scheme, Notice on Carrying out Technological Reform Trial Work on Coupling Coal, Biomass for Power Generation by State Energy Bureau and Energy Protection Department were released in succession. Guangzhou Thermal Plant actively paid attention to the opportunities brought by such policies and social issues. Following multiple investigations and the argumentative analysis of current equipment status, the power plant found that relevant boilers may carry out sludge incineration work if existing equipment and operating methods are adjusted appropriately, thereby participating in the harmless treatment of sludge in Guangzhou and solving the issue of excessive sludge in the city.

To ensure there is no secondary pollution during the treatment of sludge in urban areas, realise harmless waste disposal and transform waste into resources with less waste generated, Guangzhou Thermal Plant, together with South China University of Technology, Guangzhou Institute of Chemistry, CAS and Guangdong Electric Power Research Institute, set up a team that integrates production, learning and research, conquered technology issues in projects, made implementation plans for sludge transportation and storage, carried out environmental impact and air monitoring assessments, imported key coupling test data, established sludge characteristics database and sludge coupling value models, explored replicable urban sludge treatment schemes and achieved breakthroughs in key technology for coupling coal and sludge for co-generation.



First vehicle carrying dried sludge from urban areas to the plant



Dried sludge from urban areas dumped at the coal farm

As deployed and arranged by Guangzhou government, Guangzhou CR Thermal Plant will take the responsibility for treating 55% of Guangzhou's sludge resources between 2017 and 2022, completely solving the issue of excessive sludge for the green development in core cities in Guangdong-Hong Kong-Macau Greater Bay Area. As of now, the power plant has led and finished the research and development of key technology for coupling coal and sludge for co-generation, and is expected to turn such technology into actual results and stipulate relevant standards by the end of 2018.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

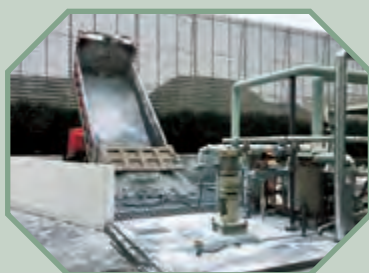
## Story

### Innovatively mixing white mud to solve the problem faced by paper mills

"Gucheng Power Plant mixed white mud in as an addition, helping the government solve the problem faced by paper mills of producing solid white mud and creating good economic benefits. It is a case worth learning by all companies."

**Wang Pinlei**  
Deputy head of Zhumadian  
Environmental Protection Bureau

Paper making is a core industry for Gucheng township of Zhumadian city, Henan province, and white mud is a type of waste produced during the paper-making process which mainly contains calcium carbonate, with greyish white and no strange smell. If part or all of the white mud is discharged, it will cause serious pollution to the environment, but even if stored in piles, it will also produce dust and leak alkaline corrosive liquid, still polluting the environment to a great degree. Due to "ten policies regarding soil" and "ten policies regarding water", landfills were reluctant to accept white mud from paper mills, causing hundreds of thousands tons of white mud to pile in several paper mills. In addition, new white mud is produced every day. When it was windy or raining, residents in surrounding areas often lodged complaints against such paper mills which were then strictly monitored by relevant environmental protection departments and asked to deal



with the situation. Careless storage of white mud would cause pollution and lead to punishment on the paper manufacturers. White mud then became a serious issue of such factories.

In July 2015, Henan China Resources Power Gucheng Power Plant learned about the environmental issues from the solid waste of white mud produced by paper mills during market research. At the time, desulphuriser - limestone powder, the bulk consumable material was getting more and more expensive year by year as more environmental protection measures were taken, becoming an area that took up a large part of the Company's expenses every year. If white mud could replace limestone powder as a desulphuriser, it would not only greatly reduce the purchase of limestone powder but also completely solve the issue of secondary pollution caused by storage of white mud in paper mills.

Thus, Gucheng Power Plant set up a project team to look into the issues involved in using white mud as a desulphuriser. The first challenge faced by the team was that there was no industry standard in the field and no successful case to learn from. What issues would emerge when using white mud as a desulphuriser for the power plant was unpredictable. Following research by many parties, it was understood that a power plant in Southern China once tested the project for a short term but eventually abandoned the project. However, that power plant would not give more information on why they gave up. They only advised against trying. The team did not give up. In August 2015, following repetitive testing data and technical analysis, the team came up with testing schemes and began to try to mix in a small amount of white mud to replace limestone powder. Close inspection showed that environmental protection data did not change and the system operated as normal. The team then increased the amount of white mud mixed in and continued to adjust various parameters regarding system operation, solving the problems occurred in the process in a timely manner. During the mixing process, chlorine ion data was once detected as abnormal and slightly high. The team then stopped the experiment, analyzed relevant data, looked for reasons, communicated with paper mills to adjust the amount of water used when white mud was being produced to reduce the content of chlorine ion. Following nearly half a year's experiment and exploration, issues were being discovered and then solved, and the amount of white mud mixed in to replace limestone powder continued to increase.

Data showed that desulphurising discharge indices, slurry quality and dehydration system operation were all normal. Desulphurising gypsum quality did not change. During the experiment, paper mills attached great importance to the project and showed great cooperation. Their main leaders visited the power plant with a team multiple times to learn about the progress and showed great excitement when the experiment succeeded eventually. They also expressed sincere gratitude to Gucheng Power Plant for solving their worries post production.

To meet the demand from the extensive use of white mud, Gucheng Power Plant carried out careful analysis and set up standards in March 2016 according to previous testing results. The scheme was changed completely three times before the original limestone slurry manufacturing equipment system was eventually negated and a white mud operation system was designed according to Gucheng Power Plant's own characteristics. The project began its foundation digging in May, was completed in June and was put into use in July. In 2016, 5,182.96 tons of white mud was mixed in, saving RMB 860,000 in limestone powder cost. In 2017, 22,014.74 tons of white mud was mixed in, saving RMB 1.6 million in limestone powder cost. Since 2017, Henan province increased efforts in treating air pollution, subsequently closing off some mines and leading to short supply in limestone powder. When surrounding power plants were impacted, Gucheng Power Plant remained unaffected because it used white mud. The success in using white mud as a desulphuriser not only brought economic and social benefits to Gucheng Power Plant but also provided a solution to the treatment of white mud produced in the paper making industry in China.

In 2017, a large number of media platforms including the official website of Henan People's Government, Henan Daily and www.dahe.cn released an article introducing what Gucheng Power Plant did to fulfil its social responsibilities and the effects, and recognised that Gucheng Power Plant set an example as an "Energy Saving Efficiency, Green Environmental Protection" company. In recent years, Gucheng Power Plant conquered technical issues in production and as of now it has been granted 16 patents by the government.



# Environmental Performance

We attach great importance to the protection, reasonable development and utilisation of water resources. We deepened the promotion of water saving management as well as spared no efforts to increase water resource utilisation rate and save and protect our precious water resources through measures including desalination, reclaimed water treatment, recycling, technical transformation and water and soil conservation.

## Case

### Zero waste water discharge in a power plant

To save water resources, Henan CR Power Shouyangshan Power Plant set up a team to tackle obstacles, taking advantage of existing equipment to gradually carry out retrofitting to achieve zero waste water discharged by the power plant. During the first phase of the project, with extremely low investment, the power plant's desulphurised waste water was recycled using submerged scraper conveyor following multiple experiments and technical optimisations, increasing gypsum quality substantially. Prior to this, the desulphurised waste water was discharged according to standards. During the second phase, desulphurised waste water was precipitated using an aeration tower, increasing the amount of waste water desulphurised and thus realising zero discharge of recycled waste water. During the third phase, the entire power plant was checked for random waste water discharge and then improved. A water collection system was built at the main water discharge outlet of the power plant, guiding recycled waste water to the machine processing pool system for treatment so as to achieve comprehensive utilisation. From July 2017 to now, Shouyangshan Power Plant realised zero waste water discharge, making its contribution to bringing back clear water and blue skies.



Waste water recycling pool in the power plant



Main waste water discharge outlet in the power plant

## Case

### Making good use of mine water and domestic sewage

Huangjiagou coal mine in Shanxi improved the standards of mine water treatment system. Following the retrofitting, the quality of treated water met the type-III standard for surface water. The company used mine water instead of underground water for boiler water recycling, water induction under mines, spraying water to reduce dust, watering flowers and grass and so on, saving about 200,000 cubic metres of clear water and over RMB 400,000 in water resource fees a year. In the meantime, relying on domestic sewage treatment equipment, the company added deep treatment system for sewage. The treated water, meeting the green standard and road sprinkling standard, was used for reducing dust at coal mines, sprinkling roads and field irrigation, saving 15,000 cubic metres of clear water and about RMB 30,000 in water resource fees a year.



Domestic sewage treatment station



Mine water treatment station





Environmental  
Responsibilities



Social  
Responsibilities



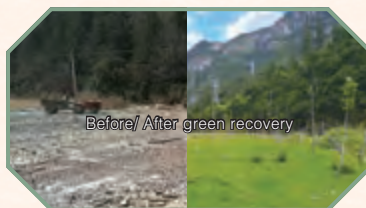
Market  
Responsibilities



Responsibility  
Management

## Effectively Protect Ecological Civilisation

During project construction, reconstruction, expansion and reform, we strictly followed the government's relevant policies and environmental protection standards, carried out work including environmental impact evaluation and the review and assessment of energy saving and emission reduction amount, as well as made sure that environmental protection facilities and the projects were simultaneously designed, constructed and put into operation. During project construction and operation, we also attached great importance to the protection of local ecological environment, minimising the impact on ecological environment.



Sichuan CR Power Yazui River Hydropower Station used various methods including soil covering and grass and tree planting to recover the ecological environment at original construction material sites and slag disposal sites.



New Energy Operation and Maintenance Company in Northeast China Region carried out voluntary tree planting activities involving different bases, and a total of over 1,200 trees were planted.

## Story

### Sanqingshan “in green clothing” again

“Wind turbines brought vitality back to the economy of our village and have become part of the beautiful scenery on the mountain. Quite a few people would visit here every year, creating good opportunities for us to sell our agricultural products.”

Villager at Sanqingshan



Approximately  
**420,000 square  
metres of green  
area recovered**

Huilai County is located in the coastal area in Southeast Guangdong. To stimulate employment, provide green and clean energy, improve local economy and energy structure and assist in the construction of an important energy industrial county, CR Power invested in the construction of a 36 MW mountainous wind power project – Sanqingshan Wind Farm.

During construction, roads were often built on the mountains for the transportation of large equipment, damaging vegetation to a certain extent. Due to the seasonal weather in Southern China, debris flow and landslides were frequent when rain and yellow mud would pour down from slopes where construction sites were located, forming “yellow waterfalls” and causing water and soil loss. In response to this, Sanqingshan Wind Farm used environmental protection construction technology to reduce digging on the mountain as much as possible so as to protect original appearance of the surrounding hills and forests. Sanqingshan Wind Farm also actively recovered vegetation.

When construction started, the project department hired a professional green project design company for the accurate designing of green restoration schemes. The project department also entrusted a professional team with relevant experience for the construction, reasonably arranging wind turbine construction and green

recovery areas and truly realising “green recovery in one area while wind power construction was completed in the other area.”

Sanqingshan Wind Farm has invested a total of RMB 5.3 million in green recovery projects. Before its completion for operation, the wind farm was monitored onsite by a third-party assessment institution which found that 100% of the affected area was already covered in green, with a total green recovery area of about 420,000 square metres, among which grass seeds were sprayed in an area of around 260,000 square metres, nearly 10,000 acacia mangium trees and ivies were planted.

Seeing eagles flying in the air and wild pigs walking in the mountain, local experts put their thumbs up and said: “Wild animals are very sensitive to ecological environment. The increase in the number of such animals is the best proof that the local ecological system is functioning well.”





# Environmental Performance

## Fully Implement Green Office

To create a clean and quiet living and office environment for communities in the surrounding areas and employees, we continued to strengthen the monitoring of indices including dust, sewage and noise as well as the management of surrounding environment. In addition, we actively carried out work including planting trees to reduce carbon emission, preventing noise and dust as well as reclaiming green land so as to protect the ecological environment.



The Northern China Region held "CR Home" green building activity, organising employees to use their spare time to plant over 10 types of seasonal vegetables in the green zones in the apartment areas. Vegetable plantation responsibilities were handed down by department.

At the workplace, we strongly encourage saving resources, prevent waste, enhance employees' low carbon life concept, continuously accelerate the improvement of the construction of the information office system, realise paperless office and increase work efficiency. We also push forward the normalisation of video conferences, with all levels of units holding a total of over 1,716 video conferences (20 large conferences involving over 50 conference locations) during the year, involving a total of 50,000 participants, greatly reducing management cost, resource consumption and carbon emission. In addition, we actively participate in social environmental protection activities to strengthen environmental protection promotion.



China Resources Power Haifeng Power Plant carried out "green upgrade" of the office environment, purchasing green potted plants for employees' office tables, rest corners and sinks, creating a tidy and cosy office environment.



To save electricity cost, Xuzhou Huaxin Power Plant introduced solar panels as the power source for electronic display boards. It relocated the boards in places with strong sunlight. Solar panels were used to provide lighting for the light boxes of promotional boards. Such method has truly achieved green and environmental-friendly use of electricity.



China Resources Power Hunan Power Plant was selected as Hunan's first environmental protection educational base. An environmental protection educational display hall was built, containing model area, game interaction area, environmental protection reading area, environmental protection video watching area, environmental protection advertisement poster area and environmental protection award display area.



Acoustic screen at plant boundary



Sound-proof wall for equipment

China Resources Power Liuzhi Power Plant invested RMB 13.69 million to control the plant noise. In addition to isolating and reducing the noise from the noise-generating equipment, noise reduction barrier was installed at the north side of the boiler, and acoustic screens were installed outside the plant.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Case

### Green mine welcomes visitors

"'Environmental protection open day' is a new concept, and it's the first time we heard it in the mine area!" Looking at the activity announcement at the entrance of the mine, an old guy living near CR Liansheng Guanjiaya mine made the above comment.

On November 21, 2017, relevant leaders from Lvliang people's congress, urban construction environmental protection working committee, Xingxian county government, environmental protection bureau and coal bureau, various media companies including People's Daily Online, China News Service, Sanjin Metropolis Newspaper and Lvliang TV station as well as the inspection group consisting of over 60 villagers in the surrounding areas and employee family members visited Shanxi Guanjiaya Coal Mine to appreciate the modern and green mine in close distance. The inspection group visited the following sites in succession: cultural corridor, employee library, exercise plaza, voluntary labour work demonstrative garden, production and dispatch command centre, steam boiler room, sewage treatment station and so on to learn about the efforts and achievements made in areas including safe production, environmental protection and cultural construction. When hearing about the coal mine achieving 35% green rate with the "one person planting one tree" activity, using recycling pipe network under the coal mine to design and process the sprinkling dust reduction system as well as tackling issues to design solid-state dosing device on its own and greatly improving water quality treatment effects, every visitor unanimously spoke highly of the coal mine's environmental protection work.



The mine carefully practised the development concept of "clean water and green mountains are in effect like gold and silver mountains", actively promoted the construction of ecological culture, and held a variety of new activities on the mine, making it the first mine to do so among those in Lvliang and setting a benchmark and example for all coal companies.

In 2017, to strengthen communication with the public and enhance the public's understanding of CR coal mine management, CR Coal Group organised its Hunan CR Limin Coal Mine, Shanxi CR Daning Coal Mine, CR Liansheng Guanjiaya Coal Mine and Taiyuan CR Yuanxiang Coal Mine to hold mine environmental protection open day for the public. The activity was reported on many media platforms, winning widespread attention from all walks of life and receiving high acclaim.





# SUMMER

## SOCIAL PERFORMANCE

*Lotus leaves under the sky in endless greenness  
Lotus flowers under the sun in bright redness*

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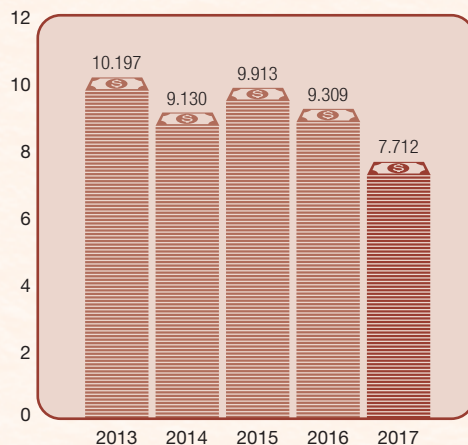


# Social Performance

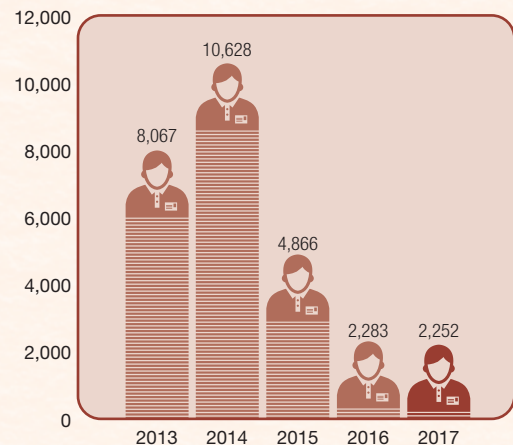
## Government Responsibilities

We strictly implement national policies, operate our businesses in accordance with all applicable laws, and fulfil our obligations to pay taxes. In 2017, we paid a total of RMB 7.712 billion in taxes. In addition, we make efforts to create job opportunities. In 2017, we employed another 2,252 people, including 297 fresh university graduates.

Total taxes paid  
(HK\$ billion)



New employees hired  
(person)



On November 15, the Company's subsidiaries in North China Region, together with Gaoyi County People's Government and Hebei Xinsantai Shoe Manufacturing Industry and Development Co., Ltd., signed the "CR Gaoyi Environmental-Friendly Clean Energy Project Development Agreement". Pursuant to the agreement, a waste power generation project with a daily treatment amount of 600 tons and planned capacity of 60 MW is planned to be developed. The project will rely on the waste materials produced by local shoe manufacturing companies and provide electricity and heat energy for the shoe manufacturing town, supporting the construction of Xiong'an New Area with actions and creating employment opportunities for the locals.



Guangzhou CR Thermal Plant was named the "Exchange Activity Base for the Youths in Guangdong, Hong Kong and Macau" and the "Internship and Employment Base for the Young Students in Hong Kong and Macau" successively. In 2017, the plant organised over 200 young students in Hong Kong and Macau to participate in the "Experience Green Power Plant" series of activities open to the public and the "One Hundred Companies Taking One Thousand Interns" project in Nansha district for young students from Hong Kong and Macau. Three students from the universities in Hong Kong were given an opportunity for a 6-week internship at the plant.

We attach great importance to the community connection with the areas where the Company operates its business. We select relevant investment projects based on local characteristics and our own strengths, providing employment and training opportunities for local people. In addition, we endeavour to purchase raw or auxiliary materials locally so as to actively promote the economic and social development of the area.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Targeted Poverty Alleviation

Eliminating poverty is a dream shared by all human beings, and it is also an important theme in the contemporary era. China's poverty alleviation work has entered a crucial stage. We fully took advantage of our strengths in areas including capital, management, technology and talents, conducted poverty alleviation through industry, helped to develop agricultural projects with special features and projects that would increase income, enhanced infrastructure construction, participated in CR Group's construction of Hope Towns in poverty-stricken areas, and so on, making contribution to poverty alleviation in all areas with a total investment of approximately RMB 1.73 million in the special poverty alleviation fund.

### Lead the Development of Surrounding Areas via "Industry + Poverty Alleviation"

We combine industry development and poverty alleviation in local areas by investing in the construction of wind power and photovoltaic power generation projects in poverty-stricken areas, and we adopt models including "industry + agriculture/husbandry + farmers/herdsmen" and "industry + finance", benefiting surrounding residents with our good business performance.

#### Case

### A barren mountain was turned into a "gold mountain"

In response to the government's targeted poverty alleviation and elimination strategy, we invested in the construction of the first photovoltaic power station for poverty alleviation in Lvliang with Lanxian government in Shanxi. On June 27, 2017, Lanxian photovoltaic power station was successfully connected to the grid and commenced power generation. It was also CR Power's first modern energy demonstration base that integrated photovoltaic power generation, modern efficient agriculture and husbandry. In the meantime, the station considered ensuring income allocation for poverty alleviation by PV as its priority, lifting 1,200 local poverty-stricken families out of poverty, with each family being given RMB 3,000 in poverty alleviation income every year for 20 years. For the locals, income kept coming in steadily, turning the barren mountain into a "gold mountain".



#### Case

### Wind turbines turn round and round to alleviate poverty

The Company's subsidiaries in Central China Region and Zaoyang Targeted Poverty Alleviation Investment Co., Ltd. jointly developed and constructed Zaoyang Bailu and Zaoyang Pinglin wind power projects for poverty alleviation, with part of the operating income used for the collective poverty alleviation work in various poverty-stricken villages. From the time when it was connected to the grid in December, 2016 to October 1, 2017, Zaoyang Balu wind power project generated a total of 34.28 million kWh in power accumulatively. This created RMB 1.723 million for poverty alleviation, solving the employment issue for some villagers and the electricity shortage issue for villagers in some mountainous areas and greatly improving their lives.





# Social Performance

## Support Local Special Industries by Acting According to Circumstances

Fixed-point poverty alleviation is an important component of poverty alleviation development undertakings with Chinese characteristics. All units of CR Power actively respond to local governments, base themselves in poverty-stricken areas, improve working mechanism as well as take measures including donating special funds for poverty alleviation, stationing at poverty-alleviation points, and helping to develop agriculture projects with special features and projects that increase income, so that the local areas can overcome poverty, achieve prosperity and realise the goal to strive for a relatively comfortable life.

### Story

#### Purple yams light up the dream of a happy life for Laowangzhai Village



"It has been a bumper year for the type of purple yams introduced to us by the poverty alleviation work team of CR Power's Fuyang Power Plant. They are huge in size and heavy in weight, and the output is high, which is one third more than last year. I can't even describe how happy we are!"

Villager of Laowangzhai Village

In September 2017, purple yams in Laowangzhai Village, Jieshou, Anhui were ripening, with locals bustling around harvesting the purple vegetable.

Once the same as other poverty-stricken villages in China, Laowangzhai Village in Jieshou had rugged and muddy roads, with villagers relying solely on their share of the land for income. In 2012, CR Power's Fuyang Power Plant responded to the local government and chose to work with Laowangzhai Village to lift the village out of poverty. For 6 consecutive years, the power plant has helped Laowangzhai village in economic construction, providing strong support in properties, finances and manpower for the poverty alleviation work.

In 2016, Fuyang Power Plant invested RMB 200,000 in maintaining roads and setting up a photovoltaic power station for the village. After the photovoltaic power station was put into production, 37 poverty-stricken families were given about RMB 3,000 out of the annual photovoltaic income. In May, 2017, the power plant stationed a poverty alleviation work team at Laowangzhai Village, and two young CR employees began to work for the poverty alleviation work at the village. They visited the poverty-stricken families one by one, making industry project plans for poverty alleviation for each family; they inspected the plantation situation of the land, adapting measures and expanding the plantation of purple yams; they came up with the "one village producing one product" development plan, gradually solving the problem of low income for the whole village and accelerating the village's pace to overcome poverty and achieve prosperity. In August 2017, to speed up the economic development for the whole village, Fuyang Power Plant's poverty alleviation work team stationed at the village helped to establish and register Laowangzhai Entrepreneurship Economic Service Company, building the "Pujianwang" brand for the collective industry of the whole village and leading poverty-stricken families to gradually promote and expand the processing and sales of purple yams.

In autumn, the village harvested purple yams. As a quintessential green food, purple yams have a relatively high nutritional value, hence a good prospect on the market. Fuyang Power Plant organised employees to actively purchase the first batch of purple yams once they were put on the market. Nowadays, road lamps are lighting up roads that are no longer rugged or muddy; villagers are enjoying big harvests; houses are looking brilliant; and the village is clean and beautiful. Fuyang Power Plant has made marvellous achievements using these simple purple yams, filling the villagers' pockets with money and brightening their life. Next, Fuyang Power Plant's poverty alleviation work team will continue to implement targeted poverty alleviation measures to consolidate the effects and lift everybody in Laowangzhai village out of poverty as soon as possible.







Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Story

### 13 families receiving targeted poverty alleviation were all lifted out of poverty

At just over 7am on September 30, 2017, a little four-wheeled vehicle was parked near the canteen of Hunan China Resources Power Liyujiang Power Plant, and goods including an electronic scale, plastic ties, fibre bags and two cages of chicken clucking happily were placed next to the vehicle. Seeing this, employees and their family members who came to buy breakfast quickly crowded around, asking the sellers to help them pick and weigh roosters or hens.

It was a couple selling the chicken, the husband called Guo Shaoxiong and the wife called Song Xiaoxiang. The couple lived at Changqing Village in Sidu Town, Guidong County, Chenzhou City, a place stuck in a mountainous area with inconvenient transportation, about 200 kilometres away from Liyujiang Power Plant. The couple drove on bumpy roads over night to come all the way to Liyujiang Power Plant to sell chicken. Why did they do this? Because the place they lived in, Changqing Village, was where Liyujiang Power Plant carried out targeted poverty alleviation, and they were one of the power plant's 13 target families for poverty alleviation.

What the couple sold right outside the power plant were Plymouth Rock chicken and chicken with black feather that were purely home grown. As National Day holiday and Mid-Autumn Day were approaching, the power plant's employees and family members bought chicken enthusiastically and even recommended them to friends on social networks. In less than 3 hours, the couple sold all the chicken they brought, a total of over 200.

Since taking the responsibility to help Changqing Village overcome poverty in 2015, Liyujiang Power Plant has helped Guo Shaoxiong to sell nearly 1,000 fowls. The couple were not the only beneficiaries. Liyujiang Power Plant set up poverty alleviation archives with their target families for poverty alleviation, visiting them from time to time like their relatives to discuss plans to achieve prosperity together. In May, 2017, the power plant stationed a person in charge at the village as one of the poverty alleviation work team members to guide these target families to overcome poverty. Nowadays, Liyujiang Power Plant's 13 target families for poverty alleviation are all out of poverty, and as of the end of 2017, the average annual per capita income at Changqing Village increased from RMB2,800 in 2015 to currently over RMB3,210.

"Thanks to Liyujiang Power Plant for actively guiding those living in poverty to study and develop new thoughts and technology, and organising and carrying out supportive activities including marketing assistance for production and technology training, which effectively helps villagers to overcome poverty and achieve prosperity."

**Zhang Yulin**

Party branch secretary of  
Changqing Village





# Social Performance

## Facilitate Poverty Alleviation via Infrastructure Construction

Improving transportation conditions and development environment in poverty-stricken areas, particularly in remote and impoverished villages, is one of the important projects for poverty alleviation. CR Power continues to increase investment in areas including road construction, maintenance of water facilities and rural environment management in places where its companies are located, so as to actively improve local production and living conditions.



Yufei Village in Dazhaizi Township, Zhaoyang District, Zhaotong City, Yunnan is located in a high-altitude mountainous area. Local villagers were living in poverty, and the roads between the power station and the village were all muddy and in bad condition. Automotive vehicles could not pass through these roads, and local students had to walk nearly 15 kilometres to go to school every day. In June, 2017, CR Power Ningbian photovoltaic power station donated RMB 50,000 for road construction and solved the difficulties for villagers and students to get out of the village.



Haozhai village in Gaolong town and Xing village in Houshi town, Yanshi city, Henan were CR Power Shouyangshan power plant's fixed-point villages for support. With a deep understanding of the actual situation and demand of both villages, Shouyangshan power plant donated RMB30,000 for the solar greenhouse project at Haozhai Village in 2016 and a total of RMB 90,000 to Xing Village in 2016 and 2017 for the setup of drinking water pipes for the villagers, construction of a plaza for cultural activities as well as farmland wells and the expansion of roads.



CR Power's Wujianfang Power Plant in Inner Mongolia donated a total of RMB 375,000 to 25 herdsman families living under the poverty line in Xiwuqi Jiren Gaolei Town Jiren Gaole (西乌旗吉仁高勒镇吉仁高勒), Bayan QingGele (巴彦青格勒) and Bayan Wulagazha (巴彦乌拉嘎查) for the renovation of dangerous houses.

## Charity and Public Welfare

CR Power has long been committed to charity and public welfare affairs. Management Standards for Charity and Public Welfare Activities was formulated and implemented to strengthen the management of the review, approval and operation of external charity and donation activities. The Company also implemented project supervision and actively carried out and participated in charity and public welfare activities. Throughout the year, the Company donated money and goods worth a total of RMB 2.96 million to the public through activities including helping underprivileged students with their study, disaster relief, environmental protection and activities showing respect to the old people, with about 4,000 volunteers participating in these activities.



Jinggangshan China Resources Hope Town, the 7th Hope Town built with money donated by China Resources Group, is located at Luofu Sub-district in Jinggangshan, Ji'an City, Jiangxi. In May, 2017, the Company's subsidiaries in Central China Region donated and installed 88 sets of solar road lamps for the town and donated 2 sets of projectors to the town's hall which could accommodate 100 people, with two donations worth a total of RMB 316,400.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management



On May 13, the Company's subsidiaries in Southeast China Region organised its employees to participate in the activity of "selling carnations on Mother's Day to help support poverty-stricken families with multiple births" jointly held by Fuzhou Red Cross and Fuzhou Volunteer Association.



On September 19, Henan Gucheng Power Plant, together with Zhumadian City Centre Blood Station, carried out blood donation public welfare activity, and over 60 employees donated blood.



On September 27, the employees from Jinnan maintenance station of the Company's New Energy Operation and Maintenance Company in Northern China Region and Shanxi New Energy Operation and Maintenance Company came to visit Beihan Primary School in Fushan county with goods including school bags, stationeries, moon cakes, sports equipment, fruits and snacks, bringing care and love to this primary school in a mountainous area that had only 17 students.



Between April 14 and 17, the Company's "Happy Volunteering, Building South China with Love" volunteer service team in South China Region went to Tianhou Temple in Nansha district, Guangzhou and provided voluntary services including clearing weed and rubbish, promoting environmental protection and health knowledge as well as maintaining order and guiding tourists for the annual Mazu Cultural Tourism Festival.



On November 4, the Company's subsidiaries in Hunan visited the nursing home at Xifengdu town, Chenzhou City, sending clothes, rice and oil to 44 elderly people with no family and chatting and talking with them.



On November 21, CR Power Yichang Power Plant donated RMB500,000 to the "True Love for Xiaoting District" fund for emergency rescue set up by Xiaoting District Charity Association in Yichang, Hubei.

## Hurry up! Help Jiuzhaigou

At 21:19 on August 8, 2017, a 7.0-magnitude earthquake stroke Jiuzhaigou county in Aba prefecture, Sichuan province. CR Power spared no time to initiate its emergency plan, requesting all subsidiaries in Sichuan to ensure that earthquake and disaster relief work was carried out properly and to actively participate in rescue work in the disaster-stricken area while ensuring the safety of people and equipment. The Company's subsidiaries in Southwest China Region quickly held a special meeting to set up an earthquake and disaster relief work team. The team would then make arrangements for matters including supporting the disaster-stricken area and donating money and goods overnight, assembling rescue goods worth of more than RMB 50,000 including quilts, food and drinking water that the affected area was in urgent need of and then collaborating with China Resources Group's earthquake and disaster relief work team stationed in Sichuan to quickly transport the relief goods to the affected area in Jiuzhaigou county. Employees in these areas also made donations actively. Employees in the region actively made donations. During the mid-year report meeting of the Region held on August 10, participants of the meeting donated a total of RMB16,400. Many of employees also made donations through the local Red Cross or other charitable organization or via SMS messages or on the Internet, showing love to their fellows in the disaster-stricken area.



## Case



# Social Performance

## Caring for Employees

We insist on the concept of “respecting people’s personalities, developing people’s minds; fulfilling people’s strengths, discovering people’s potential; caring for people’s needs, realizing people’s value”. We always endeavour to provide a strong driving force for talents to grow and employees to live a happy life through good value realization. As at the end of 2017, the Company had 29,827 employees in total, among which 5,277 were female, accounting for 17.69% ethnicity, and 32 were female managers, accounting for 11.7% of the total number of managers.

## Protect Employees’ Rights

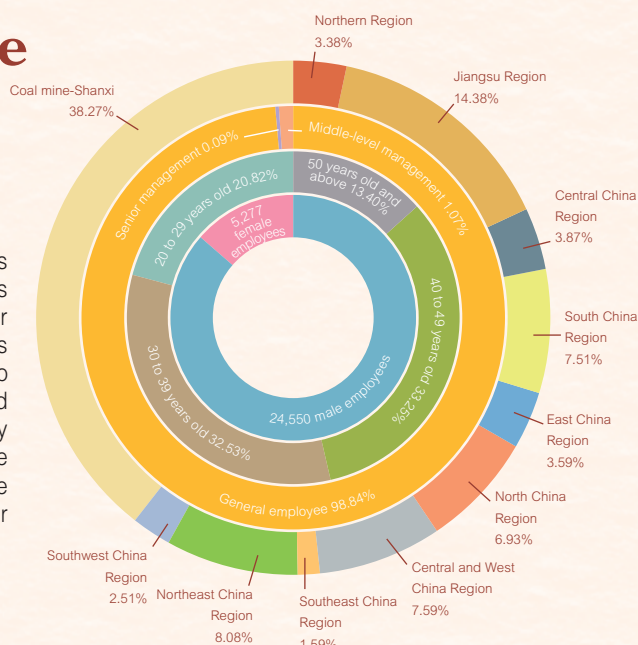
We respect and protect employees’ benefits and rights, and strictly abide by the Labour Law, the Labour Contract Law, the Implementation Regulation for Labour Contract Law, the Law on the Protection of Women’s Rights and other laws and regulations. We implement the labour policy where people are not discriminated against due to their gender or ethnicity, protect employees’ rights for rests and holidays, and are against any kind of discrimination and forced labour. We conduct strict management and confidential work for employees’ information and privacy during recruitment, assessment and payment. In addition, we implement democratic management, listening to employees’ suggestions and opinions through visits, seminars and leaders’ mailbox. In 2017, 100% of the employees signed labour contracts, with 100% social security coverage. No major labour disputes occurred during the year, and no human rights complaints were received.

The Company pays all types of social insurance for its employees including pension, medical insurance and unemployment insurance as well as housing fund. In addition, the Company purchases supplementary commercial insurance for its employees and their family members. We follow the management concept of “paying for the position an employee holds and their performance and capability”, continue to perfect the remuneration system, focus on constructing a high performance culture as well as create a diversified review and motivation system based on contribution to value, efficiency and professionalism so as to construct a competitive remuneration system based on the market situation.

We strictly implement the Law of Occupational Disease Prevention and occupational disease prevention laws and regional regulations. In 2017, we formulated and issued Occupational Health Management Standards. We provide employees with regular physical examinations and physical examinations for special job positions. In addition, we care for employees’ psychological and physical health by promoting occupational and common disease prevention knowledge through health talks as well as continue to improve employees’ work environment and conditions. The Company organizes annual physical checks and sets up health records for its employees with 100% coverage. No occupational disease has occurred at the Company for years.

In 2017, we carried out occupational health risk assessment, spot checking 4 mines and 4 thermal power operation projects. 18 exemplary actions were noticed as well as 180 problematic actions. We gave special feedback to relevant units and requested them to make rectification within a certain period.

In the employee engagement survey of 2017, CR Power achieved a score of 83%, landing itself within the zone of high performance/best employers. Since 2007, the Company’s employee engagement score has been improving.



Inviting medical experts to analyse physical check results for its employee



Organizing onsite spot checks for occupational health risk assessment





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Case

### Room for Mothers

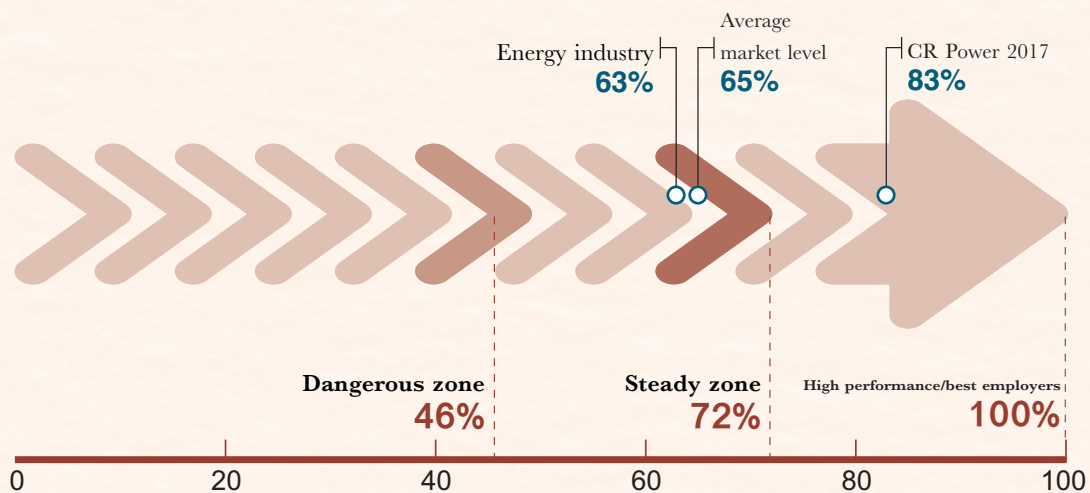
On September 26 2017, "Room for Mothers" was formally set up and put into use at Guangzhou China Resources Thermal Power Co., Ltd. in Guangdong. Inside the room, there were amenities such as a baby bed, soft sofa, milk warmer and steriliser as well as mother and baby photo albums and parenting books, providing a caring service with a personal touch to female employees during menstruation, pregnancy, maternity or breastfeeding. The room became a "cosy station" where female employees exchanged health information, encouraged each other and shared parenting knowledge.



"Room for Mothers is spacious, clean and tidy as well as quiet and private, allowing us to enjoy a convenient and caring service. The room may be small, but full of love. We thank the Company for building such an excellent space just for mums."

#### Hu Yongrui

Employee of power generation department of  
Guangzhou Thermal Plant





# Social Performance

## Guarantee Employees' Safety

We place a high degree of importance of people-orientation and we continuously strive to better improve CR Power's EHS system, enhance the management, control and supervision over safe production, implement an EHS responsibility system as well as deepen the systematic implementation of work including EHS risk assessment, safety conducts watch, standard compliance, NOSA five-star management and EHS inspection and training. In addition, we manage major safety hazards, research and develop advanced safe production technology as well as continuously improve the working environment and the reliability of equipment. The Company invested RMB 406 million into safe production in 2017.

## Enhance EHS Management

We continue to improve the EHS organisational system by setting up an environmental health and safety committee as well as an EHS department in the holding company, subsidiaries in all regions and project companies, with the number of certified safety management employees reaching 1,866. In 2017, to improve the EHS system, the Company compiled and released standards including EHS Risk Assessment Standards for Thermal/Wind/Hydro Power Companies, Management Standards for EHS Accident Events (Trial), Management Standards for Safety Production, Education and Training and Guidelines for Safety and Risk Rating Management and Control as well as amended and improved On-Post EHS Responsibility System, dividing the annual EHS control targets by level and requesting all levels of the Company to sign an EHS target responsibility letter so as to ensure the implementation of the system. To enhance the management of related parties, the Company amended and implemented EHS Management Standards for Related Parties, Guidelines for EHS Bidding Management for Related Parties and Guidelines for Unified EHS Management for Related Parties to further enhance the entry qualification requirements for related parties, strengthen safety education and training, increase the safety awareness and skills of related parties as well as reduce their EHS risk.

We continue to deepen the NOSA five-star management. At the moment, 4 of the Company's subsidiaries were rated five stars, 14 four stars and 17 three stars, further improving its overall safety, health and environmental management level.



We enhance the safety management of the production system. In 2017, the Company implemented major safety management projects including "reform of major hazards of the denitration system" at Wenzhou Power Plant in Zhejiang, "reform of coal-transportation cable trench to prevent fire and flood" at Shenyang Thermal Plant in Liaoning, "dust treatment for the coal transportation system" at Haifeng Power Plant in Guangdong and "comprehensive extraction of gas from work areas" at Sucun Mine in Shanxi, continuing to enhance the foundation for safety.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

We carry out inspection to enhance management. In 2017, the Company carried out all types of supervision and inspection including the safety check before Spring Festival, special checks of EHS management system and safety assessment, so as to rectify the hazards discovered in time or request the relevant units to take measures and make rectification within a certain period. In addition, the Company thoroughly checked the safe production situation in 96 grass-root enterprises through self-checks, general checks in coal industry/regions and spot check of the EHS department at the holding company. A total of 17,292 issues were discovered and have been rectified according to the requirements of "five implementations, five results" to further eliminate issues such as habitual non-compliance, EHS risk blind spots and hazard control and management by related parties as well as improve safety management level.



The EMS department at the holding company organised safety checks



Jiangsu Region screened equipment hazards to ensure a safe peak time in summer



Northern China Region carried out a special safety check activity for the maintenance of thermal power generation units

## EHS Warning and Emergency Mechanism

The Company attaches great importance to emergency management and continues to establish and improve the emergency plan system. In 2017, the Company formulated and released Comprehensive Plans for EHS Emergency (2017 Version) and special plans for food poisoning and traffic accidents, carried out the assessment and construction of emergency capabilities for grass-root enterprises, and completed the emergency capability assessment work for 32 power plants with capacity of 600 MW or above during the year. In addition, the Company's subsidiaries carried out all types of emergency drills, with the number of drills totalling 1,266 involving 25,694 participants, effectively improving the overall emergency handling capabilities.

Fujian Huian Quanhui Power Plant holding an emergency drill for acid leakage

Yichang Power Plant in Hubei initiating the level two emergency plan for rain, snow and frost to ensure the supply of heating and power

Maintenance base of New Energy Operation and Maintenance Company in East China Region carrying out an emergency drill to deal with fires of and electricity shocks from wind turbines

Delingha Photovoltaic Power Station in Qinghai carrying out an emergency drill for floods

Northern China Region carrying out fire safety training

Xuzhou Thermal Power Head Office in Jiangsu pumping water out of drenched thermal pipes caused by tap water pipe bursting, torrential rain and so on





# Social Performance

In 2017, the Company issued a total of 8 warnings against typhoons and floods. Its South China Region, Southeast China Region and headquarters of the holding company suffered 5 larger typhoons with no casualties, and there were no general or above equipment incidents.

## Case

### Riding out from typhoons Turning challenges into opportunities

In 2017, the South China Region experienced 11 typhoons of various sizes including "Merbok", "Hato" and "Khanun" with maximum wind speed of 53.4 metres/second, 47 metres/second and 46.8 metres/second, respectively, all setting record highs in recent years. The Company's subsidiaries in the region consistently implemented the concept of "focusing on prevention" for typhoon prevention work, summed up the experience from past typhoon prevention work, strengthened hazard screening and typhoon emergency preparation work before the arrival of such typhoons as well as implemented the mechanism where the main person in charge during typhoon prevention period should be on site, ensuring that no injuries were caused to people and no equipment safety incidents occurred during the typhoons.

Among the subsidiaries, New Energy Operation and Maintenance Company, combining the regional characteristics and the features of machines, responded to the typhoons according to the "one policy for one machine" operational strategy, transforming from relying on the protection actions to stop the machines to stopping the machines in advance according to real-time wind speed of typhoons. This decreased post-typhoon equipment faults by 53% year on year and reduced the loss of electricity due to equipment faults caused by typhoons by 72% year on year, turning challenges from typhoons to opportunities to generate more power. When typhoon "Khanun" struck on October 15, subsidiaries in the region generated a total of 18.39 million kWh of power, setting a new record high.



Carrying out consolidation and prevention work onsite



Actively carrying out post-disaster re-construction work



Repairing onsite production facilities urgently



Equipment entering normal steam supply status after being adjusted and tested successfully





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Enhance EHS Education and Training

Throughout the year, all levels of the Company's subsidiaries organised 1.298 million hours of EHS training involving all employees, among which the holding company's headquarters organised 9 EHS training courses with a total of 785 employees attending, including training for EHS management personnel, NOSA internal auditors, emergency capability construction, office safety in the headquarters and safety management by heads of grass-root classes.



Relevant personnel from New Energy Centralised Control Centre in Central China Region, EHS department and production operation department participating in the signing event for the theme of "safety month for all employees"



Bohai New Area Power Plant in Hebei and Cangzhou China Resources Gas Company holding training for the safe use of gas



Lianyuan Power Plant in Hunan holding "all the way through" safety knowledge competition



Dengkou Thermal Plant in Inner Mongolia holding a debate activity based on the theme of safe production

In view of the issue of the increase in falls from height cases in recent years, the Company made the Teaching Video for the Prevention of Falls from Heights and organised grass-root employees to watch the video. In 2017, 5 personal casualties were recorded, and no incidents in respect of traffic accidents, general or above environmental pollution and occupational health occurred. By setting up an internal accident investigation team for each accident, the Company found out the reason of the accident and formulated preventive measures to prevent re-occurrence. In addition, the Company strengthened accident warning education for all employees through means such as video conferences and issuing accident investigation reports, and investigated persons-in-charge according to national laws and regulations and the relevant requirements of the Company.

Type	2015	2016	2017
Number of occupational injuries	5	3	5
Employee casualties (person)	5	3	5
Number of hours of safety training attended by employees (hour)	657,443	911,592	1,298,026
Safety production investment (in RMB mn)	479.8	376.9	406.2
Safety training coverage rate (%)	100	100	100
Number of safety emergency drills	866	1,070	1,266



# Social Performance

## Promote Employees' Growth

We established and improved such systems as Administrative Regulations on Manager Selection and Appointment, Guidelines for Professional Career Path Implementation Plan for Regions, and Administrative Measures for Talent Coordination and Exchange, created the dual occupational development path (professional line and management line), and arranged for the professional promotion of the employees. Great results have been achieved in this field.

Based on the needs of the rapid development of new businesses during the transformation and innovative development period of the Company, we continuously established and improved the systems of talent selection, incentive and reserve, and innovatively carried out the construction of core competence and talent teams of the Company. We strengthened education and training, established a comprehensive training system comprising the three elements of systems, resources and standards, and designed and implemented such leadership development programs as "Philosophy of China Resources" and "Business Operation Theories", and such grass-root employee cultivation programs as "CR Power Voyage", "Future Stars" and "Industry Map". The training investments amounted to RMB 11.16 million this year.

Type	2015		2016		2017	
	Number of Trainees	Per capita hours	Number of Trainees	Per capita hours	Number of Trainees	Per capita hours
Senior management	2,236	10.8	2,248	12.6	2,686	13.2
Middle management	57,653	18.3	42,396	18.5	47,836	35.5
Employees	112,328	15.97	203,848	13.9	80,995	28



"Future Stars" training camp for new employees in 2017





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management



We enhanced internal communication and study, and facilitated the training of grass-root employees. In 2017, we organised more than 100 professional regional engineers and “The Flash” (also called “multimedia courseware development engineer”) to create more than 100 professional micro-courses and successfully launched online learning via the “China Resources University APP” platform. In the Third Chinese Enterprise Micro-course Competition (Shenzhen Division) in 2017 organised by Training Magazine under Xinhua Daily Media Group, our 2 micro-courses focusing on power expertise were granted the prize of excellent works. In the Alliance Cup micro-course competition for the state-owned enterprises, our submitted micro-courses won 2 first prizes, 1 second prize and 1 third prize.



Internal trainer meeting of the Company



“Business Operation Theories” training course for general managers of project companies



“CR Power Voyage” – the international talent cultivation program



New energy business technology forum



# Social Performance

## Care for Employees' Life

We focused on the balance between the works and lives of the employees, and tried to create a positive, optimistic, active and warm corporate environment by organising unions and thematic lectures, sports competitions, work exhibitions, family day, parties and other relevant activities. We helped the employees relieve stress, work happily and live happily by inviting experts to give lectures on emotion management and organising psychological counselling activities.

We established the Love and Support Fund of CR Power to actively help the employees solve difficulties in life. In 2017, we paid a total assistance of about RMB2,540,000 putting the responsible philosophy of "caring for the employees" into practice.

Type	2015		2016		2017	
	Persons (families)	Amount (RMB1,000)	Persons (families)	Amount (RMB1,000)	Persons (families)	Amount (RMB1,000)
Giving support to underprivileged employees	467	1,062.7	586	811.1	542	687.3
Visiting underprivileged employees' families	367	160.1	337	402.8	324	364.3
Sponsoring the education of the children from underprivileged employees' families	50	76.7	68	93.6	75	123.0
Giving assistance to sick employees	63	147.9	266	573.0	367	1,365.3



China Resources Daning has been carrying out the activity of "delivering coolness in the blistering summer" by sending watermelon, sweet mung bean soup, bean jelly and hawthorn soup to the frontline miners.













# AUTUMN

## MARKET PERFORMANCE

*Remember, the best time of the year,  
when oranges are turning yellow and tangerines green*

Responsibilities to Shareholders	60
Responsibilities to Customers	72
Responsibilities to Partners	74





# Market Performance

2017 is a key year of the “13th five-year plan”. We actively responded to the complicated market environment for power, committed to the development roadmap of making progress while maintaining stability with innovation and transformation, strictly adhering to the Company’s development planning and “3+1” business strategy, accelerating the development of clean energy and optimizing coal power and coal asset structure. In addition, the Company made plans for its power retail and comprehensive energy business, steadily promoted its overseas business and enhanced the Company’s risk resistance capability and market competitiveness to realize the Company’s steady development and preservation and appreciation of state-owned assets.

## Responsibilities to Shareholders

### Steady Growth of Economies of Scale

In 2017, 1,010 MW of wind power and 145 MW of photovoltaic power was put into commercial operations respectively. Total attributable installed capacity reached 36,077 MW, total assets of HK\$221 billion and the state-owned asset preservation and appreciation rate was 109%.

In 2017, thermal power capacity installation slowed down and power consumption increased in China. CR Power’s coal-fired power plants, which are highly efficient, large-scale units and located in regions with high power demand and benefit from certain market advantages achieved average full-load equivalent utilization hours of 4,964 hours, representing a year-on-year growth of 1.4%, which is 755 hours higher than the national average level. The average utilisation hours of our wind power plants was 2,225 hours, 277 hours higher than the national average level, taking the lead in the industry. The Company’s annual turnover was HK\$73.3 billion, representing an increase of 11% year on year, and net profit of HK\$4.6 billion.

In 2017, the Company recorded return on invested capital (ROIC) of 5.3%, taking the lead in the industry, and debt to capitalization ratio was 55.7%, up by 0.6% year on year, continuing to maintain a steady and healthy capital structure.



On December 27, 2017, 50 MW wind power project in Mingguang, Anhui was successfully connected to the grid for power generation, achieving a breakthrough in CR Power’s wind power installation in Anhui, previously there was none in Anhui.



Performance Index	Unit	2015	2016	2017
Turnover	HK\$ bn	71.4	66.2	73.3
Net profit	HK\$ bn	10.0	7.7	4.6
Gross generation	bn kWh	196.1	196.8	201.6
Total heat generation	kGJ	59,025.7	65,190.5	73,831.3
Raw coal output	mn tonnes	13.9	14.7	15.0





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



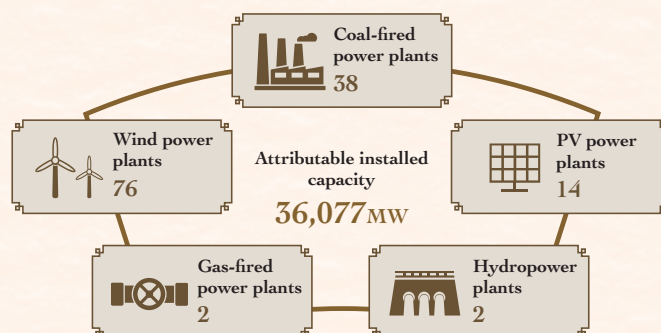
Responsibility  
Management

## Continuous Optimisation of Asset Structure

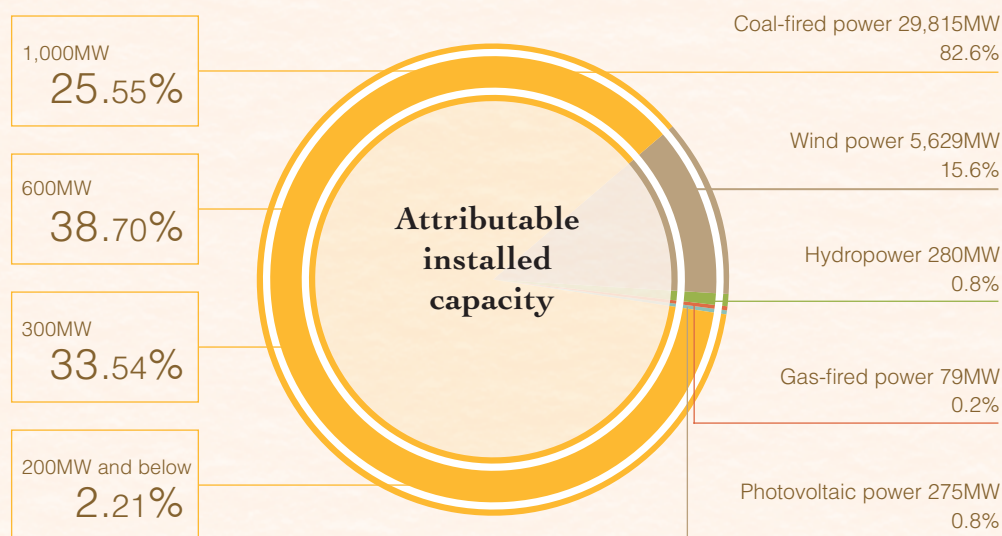
We comply with the government's requirements to reduce excess capacity for coal-fired power, strictly control investment in coal-fired power, shut down outdated units, carry out equity cooperation and optimise inventory assets. In 2017, we shut down 2 x 135 MW units in Xingning, Guangdong and reduced our equity stake in Liuzhi power plant in Guizhou and Cangnan power plant in Zhejiang. During the year no coal-fired power were commissioned.

With coal prices continuing to rise, we responded to changes in the market together with local coal companies, and strengthened collaboration with large local coal companies including Datong mine, Lu'an Group and Shaanxi Coal and Chemical Industry, exploring multi-level cooperation while entering into long-term coal supply agreements.

We spare no efforts to promote clean energy development and actively created a united management model combining development, construction and operation. In addition, we enhance our collaboration with strong wind turbine manufacturers in China and accelerated wind power development as well as continued to increase efficiency of wind power inventory through technological reform.



We completed the annual task of reducing excess capacity of coal efficiently, steadily and properly, and during the year, we closed 10 mines and pull 4.8 million tons out of outdated capacity. Based on the "one policy for one company, governance by categories" principle, we continued to carry out work including promoting lean operation, enhancing quality and efficiency, reducing size and revitalizing inventory. In addition, we attached more importance to assessment and ensured the implementation of relevant policies, achieving significant results in handling loss-making companies and companies in distress and turning deficits to profit in the coal industry. In 2017, the Company recorded 15.02 million tons of coal output, up by 1.9% year on year, remarkably reducing cost and enhancing efficiency.





# Market Performance

## Story

### Taking multiple measures to solve a difficult issue

Lu Dexing used to be shift lead at original Tangdong mine. In April 2017, against the backdrop of reduction in excess capacity of the coal industry, Tangdong mine was closed. On June 18, Tangdong Mine Reduction in Excessive Capacity Employee Resettlement Scheme was passed at Tangdong mine workers' representative meeting, with over 1,200 employees leaving their positions and resettling according to their own will.

"I've lost my job, but life still has to carry on. I need to find a new job." Lu Dexing signed the labor contract termination agreement and began his journey of looking for a job in Southern China. He stayed in Guangdong for over 20 days, and during that time he visited all recruitment points but was turned down over and over again due to his lack of education, technical skills or other reasons. With no other option, Lu Dexing returned to Tangdong mine. After learning his complicated experience in Southern China, Hunan China Resources Coal Company Limited enrolled him for a driving and road transportation qualification training. After obtaining the qualification successfully, Lu Dexing found a goods delivery job in a cleaning company in the city with the help of the company.

Now a few months has passed. Lu Dexing is doing very well in his new post, regaining confidence for life and hope for the future. He expressed passion to gain experience in the new company and then look into buying a lorry with a loan and the compensation from China Resources.

Leverage on the China Resources Group's strengths in having business in multiple industries and extensive areas, China Resources Coal Co., Ltd. transferred 1,821 employees to different positions, realized social assistance and employee re-employment through actively communicating with the government and companies, with a total re-employment rate of over 90%.

With energy schools as a platform supporting start-ups, China Resources Coal Co., Ltd. established China Resources Liansheng, Taiyuan China Resources and Hunan China Resources training points, helping employees in difficulty improve their re-employment skills. In addition, China Resources Coal Co., Ltd. collaborated with Xuzhou Senior Technician College, offering training classes for practical skills (in areas including baking, cooking and nursery) to employees with limited employment options and singular skills, with most employees entering re-employment with the help of these skills training classes. Furthermore, China Resources Coal Co., Ltd. introduced the start-up resettlement method where the company paid social insurance for employees with the intention to start their own business during the transitional period and offered a one-off start-up fund. As of now, the company has offered start-up support fund of RMB 1.71 million and provided a total transportation allowance of RMB 2.87 million for employees to survey on their start-ups.

China Resources Coal Co., Ltd. established an employee re-employment tracking mechanism where relevant staff were organized to visit employees who need re-employment so as to understand their employment situation timely and thoroughly and provide employment information and assistance. Following economic recovery and rebound of the coal market, the employment rate continues to climb up. Statistics show that among employees in re-employment, nearly 80% of first- and second-line employees have joined other coal companies, while other supporting personnel are mainly working in industries including insurance, security, catering and hospitality, construction, decoration and fashion. Supported by the "Internet+" model, some employees are engaged in jobs including direct sales, WeChat sales, online sales and ride-hailing.

During the reduction in excess capacity trend, China Resources Coal Co., Ltd. endeavoured not to let any one employee lose their job or confidence and help these employees who once worked hard and contributed to the company regain value and recognition in their new positions and start a new journey.



4 employees from Dayan coal transferred to the security department of Shanxi/Taiyuan China Resources Coal Co., Ltd.



Zhou Tongyi, employee from Taicheng coal, opened a vegetable store with the compensation and began to offer pre-order and delivery services with the help of China Resources Coal Co., Ltd., not only making deliveries to residents in community areas but also supplying vegetables to many restaurants.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Drive Development Through Transformation and Innovation

### Expanding comprehensive energy services

Taking advantages of the government's supply side reform as an opportunity, we transformed and entered into the comprehensive energy services and extended the value chain. As of the end of 2017, we established 24 provincial electricity retail companies in targeted areas in China. Among these companies, 19 have obtained entry permits, and 13 have participated in market trading, the market share of power sold by the 7 power selling companies in Guangdong, Guangxi, Henan, Beijing, Anhui, Shandong and Hebei ranking first in the corresponding regions.

We introduce multiple entry points and actively explore and develop distributed energy in various forms, intelligent micro-grids, incremental distribution networks, multiple types of supplementary energy sources and comprehensive smart energy service projects, making a breakthrough in multiple projects, where previously were non-existent in the area. The Company's first distributed gas project in building was put into operation in MixC Shopping Mall in Shanghai and the first comprehensive smart energy service demonstration project was set up at Fuyao Group in Fujian. In addition, the Company began the construction of smart energy projects with multiple types of supplementary energy sources in Changzhou and Taixing, Jiangsu.

We established Shenzhen Rundian Investment Co., Ltd. to explore the effective combination of capital and industry and seek for more investment and development opportunities. In addition, we successfully raised the first instalment of an industry fund of RMB3 billion which will be used to carry out merger and acquisitions, development, and incubation of projects in the following areas: wind power, power generation from waste incineration, agroforestry and biomass thermal power co-generation and energy efficiency services and high tech, playing an important role in the following areas: exploring industry and finance combination, reducing financial leverage, planning emerging industries and driving industry upgrade.

### Case

#### Initial trial at comprehensive smart energy services

Fuyao smart energy project is a project between CR Power and Fuyao Group for in-depth strategic partnership. Released on November 27, 2017, its first batch of 11 MW distributed PV project was connected to the grid on December 28. The smart energy platform successfully realized the collection, control, prediction and analysis, optimized dispatch and assessment management of the energy data chain consisting of distributed PV power generation, waste heat power generation, lithium bromide refrigeration, energy saving management, distribution network and power supply, adopting measures including loading prediction, loading management and economic analysis to carry out systematic analysis of the situation of power and energy use in companies as well as guiding

companies to use electricity reasonably, save electricity and realize "energy saving management" and "green energy utilization".

At present, the smart energy platform has been put into use at Fuyao Glass's floating plant in Fuqing and is expected to provide clean energy of 58 million kWh every year for the plant, accounting for 15% of the company's total energy consumption, saving 21,243 tons of standard coal, reducing the emission of sulphur dioxide by approximately 1,991 tons, carbon dioxide by 54,000 tons, resulting in cost reduction of approximately RMB10 million.





# Market Performance

## Strengthen driving force for science and technology innovation

We actively carry out innovation research matching our strategic direction, perfect innovation organizations, set up innovation platforms, establish innovation mechanisms and cultivate innovation motivations. The Company established CR Power Innovation Development and Intellectual Property Committee and Science and Technology Association, acquired Rundian Energy Science and Technology Co., Ltd. under Henan Academy of Electricity, further enhancing science and technology innovation as the core. Until then, six units are established under CR Power Technology Research Institute, namely Shenzhen Zhirun New Energy Power Survey and Design Co., Ltd., big data centre, new energy resources centre, distributed energy and intelligent micro-grid research centre, Rundian Energy Science and Technology Co., Ltd. and Chuxin Intellectual Property Management Co., Ltd. All of them initially established an effective technology support for new energy and coal power businesses.

In 2017, the Company invested RMB261 million in research and development, making substantial achievements in the transformation of intellectual property and major science and technology. In addition, the Company was granted over 180 patents and 8 registration copyrights as at the end of 2017.



On December 11, the Company held the inauguration ceremony of Innovation Development and Intellectual Property Committee and Science and Technology Association, in promotion of innovation work as a systematic project requiring long-term organization and preparation.



On December 19, the Company, the electric power research institute of State Grid Henan Electric Power Company and Henan Yuneng Holdings Co., Ltd. held a signing ceremony for the equity transfer where the Company and Yuneng Holdings acquired 80% and 20% equity interest in Rundian Energy Science and Technology Co., Ltd., a subsidiary of Henan Electric Power Research Institute respectively.

## CR Power Technology Research Institute







Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Story

### The “Extreme Vision” intelligent system brings safety to the minds of employees

In the moonlight on a starry night, Yang Gong from the coal transportation team finished loading coal and was walking between coal bunker belts. He looked at his watch, seeing that it was already midnight, he thought to himself “I have to rush back to the central controlling office for shift changing”, and then he realized that he wouldn't make it on time. Just as he was leaning on the rails and about to cross over the belts, the trespassing alarm went off. He realized instantly that trespassing the belt does not comply with the safety standards and the consequences would have been undesirable. Fortunately the Extreme Vision system that sounded the alarm in time, and prevented a huge disaster.”

Since 2017, the probability for such events with potential safety hazards to occur has gone down significantly compared with the past, thanks to the commissioning of “Run Extreme Vision”. So what is “Run Extreme Vision”?

“Run Extreme Vision” is a smart monitoring system for safety that was jointly researched, developed and constructed by CR Power Hubei Power Plant and CR Power Technology Research Institute. “Run Extreme Vision” system combines smart image recognition technology and working environment in power plants. With high-definition camera as the front end and “Extreme Vision” algorithm platform as the core, “Run Extreme Vision” combines cloud video analysis technology, turning passive monitoring to active monitoring, unifying and integrating systems including video monitoring system, exit and entrance monitoring system, invasion alarm system and patrol system, realizing cross-system information and data exchange and automatic execution of alarm linked response and planning, achieving the goals to “prevent in advance, handling during the process and analyze afterwards” as well as truly improving the quality and efficiency of overall alarm linked capability and maintenance management capability throughout a power plant.



Since September 2017, in order to promote and perfect the “Run Extreme Vision” project, relevant staff worked extremely hard and overcame many difficulties. During the early stage of the construction of the project, due to relatively great interference from ambient light, the system faced difficulties including overcoming the impact of sunlight and shining angle in the day time and complex ambient light and insufficient fill light at night. Besides this, its face recognition function had to overcome the issues of staff wearing safety hats and masks and certain personnel “refuse to cooperate”.

Faced with the challenge, staff from the project team took the bull by the horns and eventually overcame the difficulty in face recognition, and met the requirements by detailed monitoring (such as face, vehicle features) under complex environment, greatly increasing recognition rate at night time.

As the project was formally implemented, the Extreme Vision system with intelligent recognition, security integration and three-dimensional monitoring functions began to closely watch every corner of the power plant like a pair of eyes. The system is also like a mirror, reflecting employees' weaknesses in safety protection. It is also much like a good friend, reminding employees to maintain a good working status on a daily basis. The Extreme Vision system not only strengthens safety monitoring and management by technical means but also brings safety to the minds of employees.





# Market Performance

## Creating an excellent operating system

We continue to deepen the promotion of lean management and carry out thorough policy management and benchmarking management, forming a standard guidance for businesses in areas covering production, operation, procurement and technology. In addition, we set up lean projects for improvement for specific weak links and push for all of the Company's main technology and economy indexes for continuous improvement, thus enhanced operating efficiency.

We promote the construction of benchmarking power plants in-depth, bringing lean management to all business links of production and operation management activities and creating a batch of power plants with leading indexes, performance and management which are demonstrative, advanced, replicable and representative in the industry. In addition, we push for organic growth, consolidate the market competitiveness of the Company, and effectively respond to all kinds of challenges. In 2017, 3 companies including Pingdu Longxin wind farm were awarded the title of China Resources Group's first batch of "6-star benchmarking factories".



CR Power's Pingdu Longxin wind farm in Shandong



### Case

## Xuzhou power plant awarded AAAA standard company with good conducts

In early 2017, CR Power's Xuzhou power plant was selected as a pilot-run company for standardised work in China. Through scientifically integrating advanced management methods and means including NOSA management, performance management and lean management, Xuzhou power plant constructed a corporate standard system and introduced relevant standards to all businesses, processes and positions. At the same time, the standard system and business system are highly integrated, with technology standards implemented consistently in management standards and requirements by technology and management standards applied to work standards, making it possible for the standard system to run at its fullest. On December 26, 2017, Xuzhou power plant was rated "AAAA standard company with good conducts" with the highest basic score (395 points) among power plants in China with a total score of 487 points.



**AAAA**

**487 points**

Rated an "AAAA standard company  
with good conducts"





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

We steadily accelerated the construction of smart power plants and realized production automation, operation leanness, management and control intelligence and environmental-friendliness through researching and applying smart equipment, cloud platform, data excavation and value analysis to reduce cost and improve efficiency. Currently, we are deepening the promotion of independent innovation, research and development and application of projects including CSASS (Centralised Supervision & Analysis Specialist System), Extreme Vision (smart safety management and control system), OOS (operation optimization system), FOS (fuel optimization system), FAS (fuel acceptance system) and EHO (equipment health optimization system), greatly improving the Company's operation level of thermal power business.





# Market Performance

## Story

### Final success after conquering many difficulties

On November 6, 2017, at the award presentation ceremony of 2016-2017 China Construction Project Luban Award (national quality project) sponsored by China Construction Industry Association, Li Bin, the general manager of Wenzhou Power Plant, held the "Luban Award" trophy in excitement. The team chased after a dream for 5 years, and it was finally realized.

#### Took the bull by its horns, experts from all areas

Wenzhou power plant's first phase of 2x1,000 MW coal-fired project was approved by the National Development and Reform Commission in November 2011, and construction formally began on March 1, 2012. The project is located in an area with wet seasons often affected by typhoons, was a coastal region, thus the design and construction are relatively more challenging.

The team members made the promise firmly and began their construction journey on a vigorous scale. The project team first made top-level planning for the construction project and formulated Target Achieving and Excellent Making Planning for China Resources Zhejiang Cangnan Power Plant, building an awareness of creating an excellent project from areas including guiding thoughts, targets and measures from the very beginning of the project, urging all companies participating in the construction to strictly follow quality requirements, fully implementing standards including ISO9001, planning and formulating a detailed technical template gallery ahead of schedule, and standardizing management by standards and guiding techniques with templates.

During construction, "four savings and one environmental protection" was followed, that is, energy, land, water and materials saving and environmental protection not only meeting national standards but also possessing strong technical quality. Thus, the project became a permanent symbol for excellent projects, for example, the project fully leverages on existing geographical conditions to have main construction including main factory and chimneys on bedrocks, reducing foundation handling fee by nearly RMB200 million. We arranged 500 KV GIS (Geographical Information system) on roads formed by mountain excavation, reducing soil stone squares, solidifying the stability of protection slopes and saving investment. We arranged the fire fighting pool on the 105 meter slope platform formed by mountain excavation as well as leading in circulating water by using leading embankment filling method in China, saving an investment of over RMB80 million. A batch of excellent projects were then born at the right moment.



#### Pioneering and innovation, showing commitment in energy saving and environmental protection

Focusing on sustainable development, Wenzhou power plant spares no efforts to promote the research and development and application of new technology and techniques. Starting from basic design, seeing safety and environmental protection as the boundary condition, Wenzhou power plant strives to innovate and optimize designs under the premise that they are reliable, obtaining 28 national-level practical patents and 13 national-level QC achievements. In addition, its research and development of "hydraulic lifting jack suspension device for stator hoisting" was awarded first prize for Power Construction QC Achievements and its welding technique was awarded first prize for "Excellent Welding Projects in China". The power plant has the first low position arrangement of pneumatic feed water pump and plane heating steam system in China as well as leading 2x1,000 MW zero waste water discharge system and dust-free management of coal-transportation areas in China.

The emission of coal-firing power plants receives great attention. Wenzhou power plant adopted high efficiency electronic precipitation and reformed 2 units for ultra low emission. Its main emission indexes are better than the national requirements, with particulates emission concentration lower than 2mg/Nm<sup>3</sup>, sulphur dioxide emission concentration lower than 30mg/Nm<sup>3</sup>, nitrogen dioxide emission concentration lower than 40mg/Nm<sup>3</sup>, reducing emission of dust, sulphur dioxide and nitrogen dioxide by 800 tons, 2,001 tons and 1,601 tons respectively. Over 70% of the power plant is covered in green, realizing dust and waste water not flowing out and gas not leaking out of the power plant, noise not affecting residents, and recycling dust ash, becoming a benchmark garden power plant in the industry.







Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

### Information supports efficiency improvement

Centring on the information strategy target of “making production intelligent, moving operations online, standardising information, centralising data and integrating systems”, we deepen the construction of the information system, endeavour to construct a platform for management, information and business sharing, improve management efficiency, create synergetic values as well as support the development of business transformation.

In 2017, we focused on the development and maintenance of the information system, obtained multiple achievements and improved the overall informatisation level in the office. In the area of management and control, using ideas and technology including big data analysis and Internet of Things, we constructed various types of production and management systems, optimised management and control interfaces and procedures including ERP (Enterprise Resources Planning System), EAM (Enterprise Asset Management System) and OA (office automation), achieved full coverage of the ERP system in 10 regions and upgraded and retrofitted the EAM system, completed the construction of production daily report system and company cloud archive system as well as improved the mobile app of “Run Work”, enhancing office review and approval efficiency and effectively assisting everyday work. We also launched the new energy centralised monitoring and maintenance information platform in 5 regions, as well as the PV centralised monitoring platform. In addition, the electricity retail business cloud platform and the thermal power centralised monitoring and analysis expert system platform were constructed, part of the functions of the fuel management and control platform were launched, and full digitisation and informatisation of the bidding business was also achieved.

### International business making breakthroughs

Under China's "One Belt and One Road" initiative and the Company's strategy, we leveraged off our rich experience and strengths in construction of power projects and operational management, and initiated our overseas development expansion. In 2017, we successfully acquired an equity interest in Dudgeon offshore wind farm in the UK.



On June 29, 2017, Shouzheng Digital Bidding Platform received a 3-star standard authentication by China Quality Certification Centre (CQC), becoming the first platform authenticated by CQC. A 3-star standard is also the highest testing and authentication standard for digital bidding and trading platforms. As at the end of 2017, a total of 1,270 sections of centralised digital bidding projects were recorded on Shouzheng Digital Bidding Platform.



Dudgeon offshore wind farm





# Market Performance

## Strictly Implementing Risk Control and Management

We attached great importance to the compliance with laws and regulations, managed and operated our enterprises in accordance with national laws and regulations as well as the rules governing the listed companies in Hong Kong, and established corresponding working rules for the Board of Directors, management team and the Investment Preliminary Reviewing Team. In addition, we formulated rules of procedure and system procedures for major business decisions, important project arrangements, major personnel appointments and disbursement, and the use of large sums of funds and we established a system for timely identification of and adequate response to the risks of the Company's business operations.

We implement and monitor discipline accountability by strengthening integrity education, improving systems and processes and enhancing supervision and inspection. We establish and improve the Company's discipline inspection and supervision organisation and systems, carry out warning education activities, strengthen managers' integrity awareness and create an organisation atmosphere of integrity and righteousness. In addition, we carry out internal inspection and set up an inspection work team to focus on checking the implementation of non-delegable duty and decision-making policies, integrity risk management and control, work compliance and other situations in the Company's subsidiaries so as to correct the four trends of formalism, bureaucracy, hedonism and extravagance. Furthermore, we handled various types of reports and clues, over 100 in total with a handling rate of 100%, seriously handling personnel who violated disciplines and rules and promoting anti-corruption and integrity.

We are a commissioned operator of state-owned assets. To ensure the security of corporate assets, through continuous practice and summary, we set up an auditing management and control system with offline supervision and evaluation, online consulting and services, pre-line warning and reminding as the core business. We developed an OPP internal control and risk management integrated framework with "organisation, procedure, system" as the core elements, as well as established a post-investment evaluation mechanism. This enriches the methodology of internal audit, internal control and risk management, gradually built risk awareness and internal control responsibility implementation mechanism based on posts, forms a set of methods for internal audit, internal control and risk management with CR Power characteristics, as well as continued to enhance CR Power's law abiding and compliance system.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management



In 2017, the Company was given the title of 2014-2016 Advanced Internal Auditing Group in China

Focused on the three management themes of "reducing overcapacity, smooth management, risk prevention" in 2017, the Company carried out 39 auditing projects and discovered 543 issues, among which 12 were high risk issues mainly in areas including bidding and procurement management, project management, safe production and human resources. In the meantime, the Company set up follow-up auditing and rectification information system, incorporating the procedures of audited companies and all functional departments and offices involved in follow-up auditing into the Company's asset management system (EAM) for online operation as well as pushing forward auditing management for all processes and procedures. The Company carried out two follow-up audits in the first half and second half of 2017, which involved 9 regions, coal groups and Beijing office and discovered a total of 558 matters to be rectified, 94% at which were rectified as at the end of 2017.

We centre on the Company's management theme, continue to carry out internal control evaluation and major special risk management projects as well as prompted the Company's subsidiaries to continue to improve internal control management level and carry out risk management work independently. In 2017, the Company organised 23 units including departments and offices of the holding company and all regional headquarters to carry out internal control self-evaluation work for 2016, and carried out internal control and auditing evaluation of 17 units by combining annual auditing projects. In addition, the Company prompted 10 regions to set up regional risk evaluation standards respectively, integrated risk management with business activities, and researched and applied various systems such as warnings for environmental protection monitoring and warning analysis of the operational risks of wind turbines. The Company also amended Investment Management Risk Operation Guidance for investment risks as well as systematically collated, analysed and formulated National Risk Operation Guidance, Procedural Risk Operation Guidance for New Overseas Projects and M&A Projects for international business risks.



# Market Performance

## Responsibilities to Customers

We insist on adopting a market-oriented approach driven by customer demand. We seize all types of policy opportunities, actively expand service offerings based on our experience in the construction and operation of our own power generation projects, as well as provide customers with electricity, heat, cooling, coal and other relevant services. We also uphold the customer service principle of “responding quickly, providing accurate plans, ensuring warm service and achieving high satisfaction” and build a good market brand with quality services of high standards, as well as promote the transformation and development of the Company while meeting customers demands. In 2017, the Company signed strategic partnership agreements with corporate groups including Foxconn, Huawei, Jizhong Energy, Fuyao Glass, Air Liquide (China), TCL, China Unicom and Chaowei Power.



On February 24, the Company signed a strategic partnership agreement with Jizhong Energy Group Co., Ltd. Both parties will carry out special cooperation in areas including direct power supply for big users, PV for coal mine depression areas, wind farm maintenance and synergetic treatment of solid wastes.



On March 14, the Company signed a comprehensive collaboration agreement with Huawei Technology Co., Ltd. Both parties will carry out comprehensive collaboration in power distribution and electricity retail business as well as areas including smart PV, energy saving retrofitting, micro-grid construction, overseas business, technology research and innovation and corporate cultural exchange.



On November 10, the Company signed a strategic partnership agreement with Chaowei Power Co., Ltd. Both parties will strengthen collaboration in areas including electricity retail business and services, energy storage, electricity equipment maintenance and repair, and retrofitting for electricity and energy saving based on own characteristics and development requirements.



On November 29, the Company signed a strategic energy partnership agreement with Air Liquide (China) Investment Co., Ltd. Both parties will further expand the cooperation scope and actively try and explore in more areas including power distribution and electricity retail business.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Story

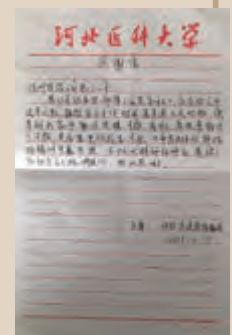
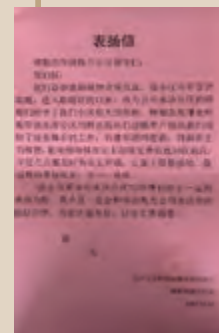
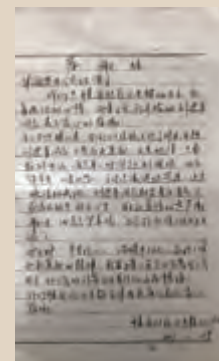
### Heat supplier: ensuring warmth

For users, problems that we can solve straight away, we need to solve them immediately. For those that we cannot solve straight away, we have to rack our brains to solve them as soon as possible." This is what Zhang Bin, deputy head of Jiefanglu office of Cangzhou China Resources Thermal Power Company, often says.

At the beginning of the heat supply season in 2017-2018, Jiefanglu office faced an issue: radiators at the home of a user living on a top floor of a community with 5 buildings did not turn hot while others' worked as normal. Though this was not covered by the service of the thermal power company, the user had no way but to try to report the issue to the thermal power company's Jiefanglu office as this community had no property management company. Zhang Bin immediately visited the user with two employees.

They let air out of the radiators and cleaned pipes inside the rooms. Though heat at the user's home increased a bit, the radiators stopped working again two days after. Zhang Bin visited the home of the user again and checked the entire building. He found out that the pipes were aging, which caused the pipes on the top floor at the end of the pipe network to be blocked and the circulation to be unsmooth. They cleaned the main pipes in the building and changed the automatic air evacuation valve. The radiators became red again. However, Zhang Bin still felt unsure and paid constant attention to the user. When he heard that the temperature went down again, he really wanted to solve the issue as soon as possible. This time, he invited experts from the Company's technology department and visited the user with these experts together to look for reasons. They expanded the check to the heat-exchange station and adjusted heat supply pressure and frequency by slightly adjusting the water feeding pumps inside the station. Following unremitting efforts, the temperature finally went up at the user's home. Zhang Bin sighed with a great relief.

This is only one small incident of caring services by the thermal company. In 2017, the company fully implemented the heat supply policy of "management specific to each user", made the service scope and targets more precise, and ensured that service responsibility was fulfilled, with its quality and efficient services recognised by a wide range of users. They received letters and flags from many users expressing gratitude. In addition, the collection of heat supply fees was also extremely smooth. As of March 27, 2018, they collected a total of fees of RMB412 million for the heat supply season, up by 15.08% year on year, truly achieving a win-win situation among all parties where the government could show trust, people were satisfied and the Company grew.





# Market Performance

## Responsibilities to Partners

We attach great importance to strategic partnership, maintain the core value of integrity, strictly follow business ethics, prompt partners to fulfil social responsibilities together, create a good business environment, promote the achievement of a win-win situation through partnership, joint development and society advancement.

### Strategic Cooperation Promotes the Achievement of a Win-win Situation

Embracing the partnership concept of achieving mutual benefits and a win-win situation, we actively construct strategic sharing mechanism and cooperation platform with the government, enterprises, professional institutions and scientific research institutes. While carrying out collaboration in areas including clean energy development, asset upgrading and optimisation, comprehensive energy services and international business, we continue to expand and deepen the collaboration so that resources and strengths complement each other, thereby bringing about joint sustainable development.



On July 13, the Company signed a strategic partnership agreement with ENN Pan-Energy Network Technology Co., Ltd. Both parties will carry out cooperation in areas including comprehensive energy service, electricity retail and technology exchange with Zhengzhou Airport as the trial project for cooperation.



On October 24, the Company signed a mid- and long-term coal supply and demand strategic partnership agreement with China National Coal Group. Both parties will further strengthen collaboration, expand existing coal trading size and establish a long-term stable direct coal procurement and sales relation.



On December 12, the Company signed a strategic partnership framework agreement with Envision Energy Technology Co., Ltd. Both parties will strengthen collaboration in areas including wind power business and smart energy.



On April 25, the Company signed a strategic partnership agreement with Longi Green Energy Technology Co., Ltd. Both parties will deepen collaboration in areas including PV project development and electricity retail business.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Promote Responsibility Performance of the Supply Chain

While playing an exemplary role by ensuring integrity management, we included the social responsibility concepts and requirements into the supply chain management, and assessed, selected and periodically evaluated qualified suppliers from such dimensions as product quality, service level, performance capacity, labor and human rights, occupational health and safety, environmental protection and credit rating, in order to implement responsible procurement and drive the supply chain partners to perform their social responsibilities.

We adhered to the philosophy of fair competition, complied with industry standards and business ethics, proactively maintained the market order and resisted determinedly the anti-competitive conducts, such as bidding collusion, bidding at price lower than cost, and trade monopoly. In 2017, we further improved the purchase management system, formulated Open Tender Management Standards (Provisional), Non-tender Procurement Management Standards (Provisional) and other relevant management systems, processes and guidelines, and established the bidding system with independent "bid evaluation, determination and monitoring operations", where the bid evaluation committee was responsible for bid evaluation, the monitoring team was responsible for monitoring the bidding process, and the bidding committee was responsible for bid determination, so as to ensure the standardized and fair bidding activities. In strict accordance with the Bidding Law and other applicable laws and regulations, we adopted open tenders for all the procurement projects that should adopt bidding processes according to the regulations of the state and the Company, and established complaint channels to receive and handle queries and complaints of the bidders during the issuance of bidding documents, bid opening and publication of bid results, in order to promote fair and just competition.

We established the supplier library, requiring the candidate supplier to sign the Integrity Undertaking and promise that all the information provided must be true and accurate, and it must comply with the relevant laws and regulations when participating in the bidding activities. We also establish the library of dishonest suppliers where the suppliers having dishonest conduct during the bidding activities or contract performance would be listed, and the suppliers listed in this library would be prohibited from participating in the bidding projects of CR Power within the specified period. In 2017, the bidders participating in the collective bids had a passing rate of over 95% in terms of the certifications of quality management system, environmental management system and occupational health and safety management system. We totally reviewed 8,833 suppliers and rejected 79 potential suppliers because they were unqualified in social responsibility. The Company has maintained a responsible purchase rate of 100% and an economic contract performance rate of 100% for many consecutive years.



Collective bids passing rate in terms of the certifications of quality management system, environmental management system and occupational health and safety management system.

**Over 95%**



Responsible purchase rate

**100%**



Economic contract  
performance rate

**100%**







# WINTER

## RESPONSIBILITY MANAGEMENT

*Rome was not built in a day*

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Responsibility Communication	80
Responsibility Capacity	86





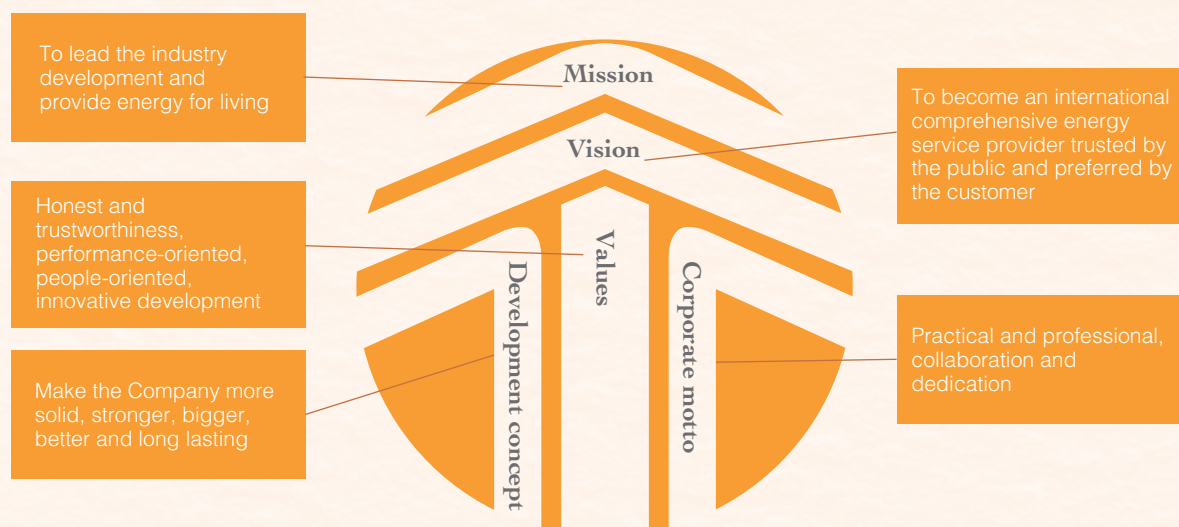




# Responsibility Management

Under the mission of value creation, we continued to prioritize sustainable development in 2017. With in-depth reform, we focused on system building, progress by practice and brand building. As a result, we improved the management and practice of social responsibility.

## Responsibility Culture



## Responsibility Governance

### Organizational system

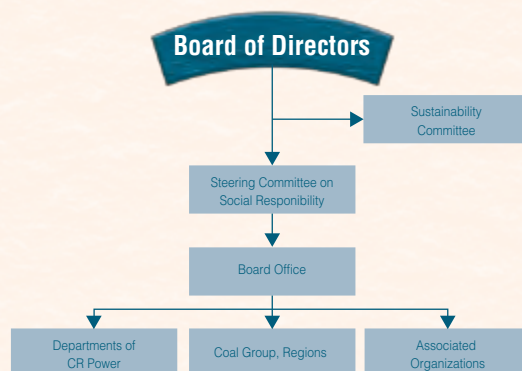
The Sustainability Committee under the Board of Directors of the Company is responsible for making recommendations to the Board of Directors on the Company's sustainable development and social responsibility management. The Company established the Steering Committee on Social Responsibility which is responsible for decision-making, leading and promoting the strategic directions and planning of corporate social responsibility according to the opinion of Board of Directors' Sustainability Committee. CR Power's Board Office is the leading management department in charge of social responsibility work. It is responsible for daily social responsibility management and preparing and releasing sustainable development reports. All units at various levels of CR Power have established relevant departments and contact points in charge of social responsibility work.





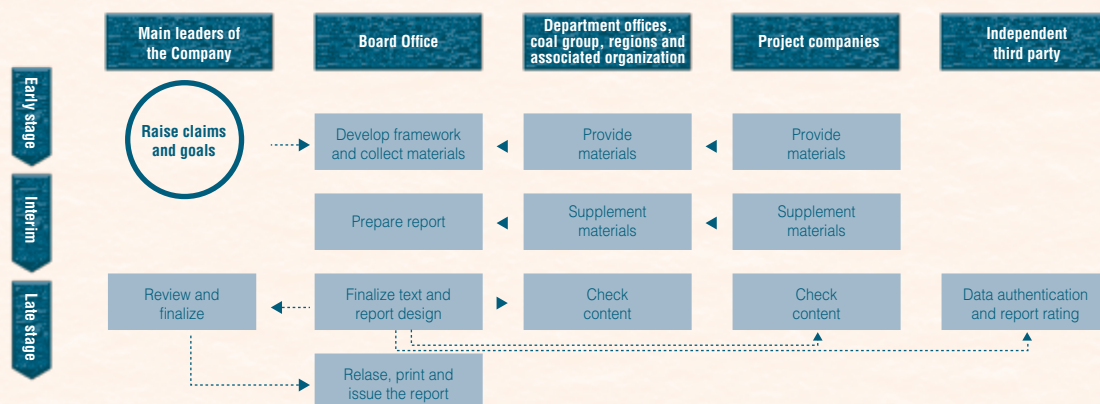
## System

Based on the latest standards and requirements including the GRI Sustainable Development Reporting Guidelines (G4) issued by the Global Reporting Initiative, China CSR Reporting Guidelines (CASS-CSR4.0) issued by the Chinese Academy of Social Sciences, the Environmental, Social and Governance Reporting Guide (HK-ESG) issued by HKEX, and the Social Responsibility Management Approach for China Resources, the Company proactively formulated and issued the Social Responsibility Management Standard for CR Power, established and perfected the daily working mechanism for social responsibility and improved the social responsibility performance index system to continuously strengthen the standardized, systematic and strategic management of corporate social responsibility.



## Report preparation system

This is the eighth consecutive year that we have compiled a sustainable development report. To promote report preparation and formulation, a specific preparation system is established. Organized and led by the Board Office and with units at various levels jointly participating in report preparation system, the system consists of a Leading Group, Report Preparation Working Group and Material Preparation Group. The Board Office is responsible for organizing the preparation, design, release, publication and promotion of the report.



## Responsibility Integration

We insist that the social responsibility target is highly unified with the Company's strategic goals, and that strategic development and responsibility commitments are organically united. We incorporate specific indicators and work such as corporate governance, transformation and development, cost control, production safety, energy conservation and environmental protection, scientific and technological innovation, cultural construction, caring for our employees, and charity work into the Company's development strategy and annual business plan. This ensures that social responsibility practices are systematically carried out according to the plan and are split at different levels to be included in the performance appraisal of units, managers and employees at all levels so as to ensure that social responsibility practices and objectives are achieved.



# Responsibility Management

## Responsibility Communication

We attached great importance on the communication with stakeholders and promptly disclosed the latest information on our production and operation, culture and philosophy and development and reform to our stakeholders through various channels, including information distributions, special reports, strategic cooperations, general meetings, Company website, satisfaction surveys, field surveys, charity activities and media communications, in order to enhance our stakeholders' understanding of and support to CR Power.

As a Hong Kong listed company, we put great emphasis on investor relations and strongly believe that effective communication with shareholders and rigorous and timely dissemination of accurate information is beneficial to creating shareholder value. We also proactively listen to the opinions, concerns and expectations of the investors by means of diversified investor meetings, with an aim to improve our operation and management.



China Resources Power released its annual results for the year ended December 31, 2017 on March 19, 2018.



Independent Non-executive Directors of CR Power visited China Resources Power Yichang Power Plant on September 13, 2017.

We attached great importance to public communication. In 2017, the Company's subsidiaries carried out a total of 105 public opening activities with 5,985 people from all walks of life participating in the activities. They felt the efforts and achievements made by CR Power in terms of green development, among which the Daning Coal Mine, Guanjiaya Coal Mine, Yuanxiang Coal Mine, and Limin Coal Mine belonging to China Resources coal business held the first coal mine public opening activities and received high praise from all sectors.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Case



### Green power plant discovery month – direct contact with the public

From September 1 to 30, 2017, 32 enterprises affiliated with China Resources Power in 10 regions, including the thermal power, wind power, PV power, hydropower and power retail enterprises, held a total of 34 Enterprise Open Days. By inviting about 1,400 stakeholder representatives from the government, customers, partners, media, communities and students, we demonstrated the history and culture of China Resources, the efforts made by CR Power in operation and management, scientific and technical innovation, green operation and environment protection and social responsibilities, as well as our contribution to the local economy, society and environment. The activities were praised and received the attention of the general public.



QR code for activity webpage





# Responsibility Management

## Case

### “Dragon 100” builds a bridge of communication for the youth around the world



Opening Ceremony



Communicating with youth representatives



Seminar with government leaders of Henan province and youth representatives



Learning national technological innovation achievements



Understanding the development situation of China Resources Shouyangshan Power Plant



Onsite plant visit



Understanding power generation knowledge onsite



Group photo at the control room of the power plant



Picking fruit and vegetables at the power plant's happy farm

Between June 12 and 18, 2017, on the eve of the 20th anniversary of Hong Kong's handover to China's administration, CR Power became the title sponsor of “Dragon 100” charity event and invited 100 excellent young Chinese representatives from 14 countries and regions to get together in China to study Chinese cities' status of innovative technology and sustainable development in Hong Kong, Shenzhen and Henan and discuss Chinese culture and global issues, urging young Chinese to take on their responsibility for the continuation and promotion of Chinese culture and fulfil social responsibility for state-owned companies in Hong Kong. During that period, the delegation visited CR Power Shouyangshan Power Plant in Henan Province to get to know the situation of the power plant's energy saving and environmental protection, technology innovation, corporate culture and fulfilment of social responsibility as well as experience the modern Chinese power plants' “industrial beauty”.







Environmental  
Responsibilities



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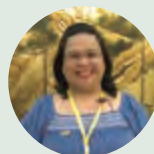
Responsibility  
Management



### Chen Zhongyi

HKFYG Council Member and  
delegation leader

The innovation and sustainable development philosophy of CR Power complemented with the theme of "Dragon 100". I was very impressed in just a few days. CR Power has innovative and open corporate culture, high market competition awareness and sense of social responsibility.



### Lysa

Professor of Ateneo de  
Manila University, Philippines

I am deeply impressed by CR Power. They did very well in sustainable development. When I learned that the freshly picked peaches I enjoyed in the happy farm were grown in the power plant, I was much surprised. I hope CR Power can bring these innovative and sustainable development ideas to the Philippines, and I look forward to visiting China Resources Power again in the near future.



### Julia

Estonia

I had visited power plants in Estonia. They were also advanced, but this place was more appealing to me. The plant is clean and tidy. There is almost zero emission of pollutants. They can even plant vegetables and fruits in the power plant. I appreciate this and hope that other countries can learn from CR Power to jointly contribute to the sustainable development of the world.



### Qiu Wenzhu

New Zealand

My impression of thermal power plant was that it produced huge amounts of pollution, and foreign media had many reports on the haze in China. However, with this visit, I feel that the foreign media were biased. When I return to my country, I will describe what I saw with my eyes about China to my friends and families, and I have become more confident on the sustainable development of China.



### Zhuang Dongsheng

Malaysia

Vice president of Association of  
Southeast Asian Youth

Many thanks for this opportunity created by CR Power. We communicated with the managers and talked with the employees. They made great contribution to the society. I am deeply impressed by their road of innovation, road of cleanness, road of harmony and road of colours. They carried out sustainable development works from the strategic level, and they also strived to develop new energy businesses. This makes CR Power a respectable enterprise.



### Jin Yaqin

Reporter of China Energy News

I feel younger in the past few days when staying with 100 young Chinese individuals from all over the world. Their innovation, vitality and entrepreneurial passion deeply influenced me. CR Power has not only been committed to supplying clean, efficient and high-quality energy to the society, but also proactively performs social responsibilities through various activities. I hope I can have the opportunities to take part in such activities in the future.



### Lian Zhouhan

Singapore

I was surprised by what I saw and heard today. In such a large company, the work and life of the employees were so well balanced through such programs as Happy Run and Happy Farm. To ensure long-term development, the enterprise shall not merely pay attention to the business results and neglect the development of employees; instead, it shall focus on the importance and engagement of the employees. CR Power did very well in this aspect. Their employees have great sense of belonging. It is a desirable company to work for.











QR code for activity  
webpage



# Responsibility Management

## Responsive measures to stakeholders

To enhance the focus, substantiality and readability of the report, we conducted surveys pertaining to stakeholders and substantial topics via the Company's WeChat Official Account, to ensure topics were consistent with the Company's development strategy and to stay close to the focuses and appeals of our stakeholders.

Stakeholders	Main focus	Means of communication	Responsive measures
 <b>State-owned Assets Supervision and Administration Commission (SASAC)</b>	Preserve and increase the value of state-owned assets; Standardize operations in accordance with laws and regulations; Information disclosure	Work reports; Statistical reports; Information release; Topic-specific reports	Strive to meet the budgets and meet the performance indicators set by SASAC; Carefully fulfil the requirements imposed by SASAC; Report the status of the Company promptly and accurately
 <b>Local governments</b>	Comply with relevant laws and regulations; Safety and environmental protection; Promote local economic development; Generate tax revenue and create job opportunities; Maintain company stability	Formulation of regulations and policies; Strategic cooperation; Work reports; Statistical reports	Fully comply with relevant laws and regulations in business operations; Take effective measures to reduce risks in safe production; Prevent serious accidents and ensure that environmental protection indicators meet national standards; Guarantee employees' salaries and benefits as well as ideological work
 <b>Investors</b>	Corporate governance; Business growth Dividend distribution; Investor relations; Share price performance	Shareholders' meetings; Information disclosure; Site visits	Establish a mechanism to make scientific decisions, implement and oversee to enhance internal management and control; Ensure high-quality growth and create value for shareholders; Disclose proper information to increase transparency; Organise and participate in various activities to communicate with shareholders
 <b>Employees</b>	Legitimate rights and interests; Remuneration and benefits; Career development; Training systems; Occupational health and working environment; Caring for employees	Staff representatives' meetings; Rational suggestions; Internal and external websites; Seminars and gatherings	Sign labour contracts in accordance with the law safeguard the interests of employees; Organize different types of training to encourage internal talent flow; Promote occupational health programmes; Improve the production and office environment; Carry out employee engagement survey; Improve human resources policies
 <b>Customers</b>	Safe and steady supply of power, heat and coal	Customer satisfaction surveys; Agreements and contracts; Customer seminars	Provide sufficient, reliable and clean power, heat and coal
 <b>Partners</b>	Honour contractual obligations and maintain good credit; Cooperation based on equality and mutual benefits; Long-term cooperative relationships	Senior management meetings; Agreements and contracts; Product and services	Promote a transparent procurement process and combat commercial bribery; Adhere to integrity and business ethics; Enter into long-term strategic cooperation agreements
 <b>Community and environment</b>	Environmental protection; Safety and stability; Harmonious community; Charity Public relations	Charity activities; Joint community development	Be dedicated to environmental protection, reduce the discharge of various pollutants; Develop recycled economy and develop a green office; Strengthen safety management and prevent serious accidents; Participate in community development and support charity and welfare activities; Participate in construction of CR Hope Town
 <b>Media and non-governmental organizations</b>	Release of information and interaction with the media; Contribution to non-governmental organizations; Impact on sustainable development	Meetings and events; Field surveys; Information disclosure	Organize media open day events; Release timely information and invite the media for interviews; Participate in industry meetings, conferences and skills competitions; Regularly communicate and maintain dialogues with non-governmental organizations to promote friendly interactions





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Determination of substantive issues

To enhance the focus and responsiveness of the report, we continued to investigate the issues concerned by stakeholders based on the improved corporate social responsibility index system through comparison with the latest domestic and international standards for social responsibility reports and combination with the actual development of the industry, in order to identify and screen out the most substantive critical issues of the year and further improve the analytical model of report substantiality.

## Identification of issues

By analysing different types of background information, we screened out and determined 32 issues related to the Company's sustainable development program, including 5 environmental issues, 13 economic issues and 14 social issues.



Environmental issues	Economic issues	Social issues
Reduce the energy consumption of production	Preserve and increase the value of state-owned assets	Production safety
Acceptable pollutant discharge	Stable and continuous returns	Provide a safe and stable supply of power and heat
Develop clean energy	Strengthen shareholder participation	Penalize and prevent corruption
Strengthen ecological protection	Improve corporate governance	Promote responsibility performance of the supply chain
Efficient use of resources	Business operation in compliance with laws	Caring for employees
	Pay taxes according to the law	Employee growth
	Fair competition	Corporate culture
	Win-win cooperation	Strengthen risk management
	Responsible procurement	Occupational health and safety
	Lead industry development	Maintain market environment
	Strengthen independent innovation	Support social welfare
	Strategic cooperation	Community exchange and communication
	Optimise customer service	Advocate volunteer services
		Protect legitimate rights and interests

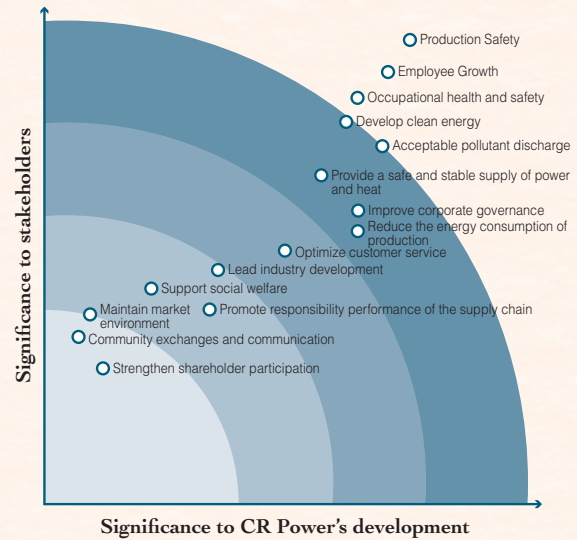
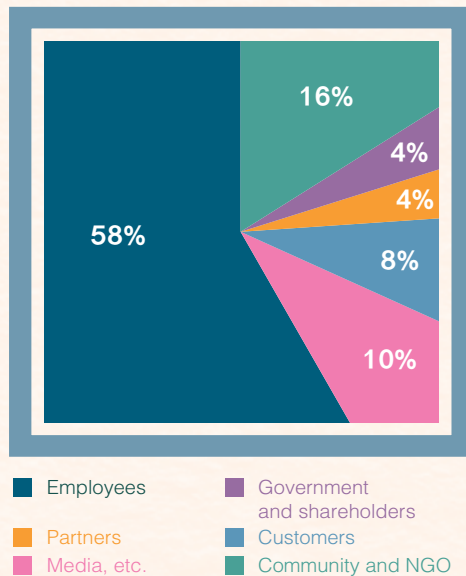


# Responsibility Management

## Analysis of issues

Internal and external stakeholders were invited to rate responsibility issues in the form of questionnaire. The issues were then ranked based on the rating results of 600 questionnaires and the substantial social responsibility issues of the Company were identified by establishing a two dimension matrix combining "Significance to stakeholders" and "Significance to CR Power's development".

## Feedback of questionnaire



## Responsibility Capacity

We attach great importance to the improvement of our own responsibility capacity. By holding meetings and trainings on social responsibility, we effectively promoted the relevant knowledge and social responsibility awareness of personnel who are in charge of social responsibility management and report preparation, as well as understanding and mastery of the workflow, methods, and significance of the preparation of reports and laid a foundation for further improving the Company's practice level of responsibility and quality of report preparation.



Sustainable Development Report Preparation Work Conference and Training Session



"The Sustainable Development Report 2016 for China Resources Power Holdings Company Limited" received a "five-star" rating from the Corporate Social Responsibility Research Center of the Chinese Academy of Social Sciences, and also was awarded "The Best Environmental Report Award in Asia", "The Most Transparent Report Award in Asia" and "The Best Sustainable Development Report Award in Asia" at the 2017 Asia Sustainable Development Report Awards organized by CSRWorks, an Asia-based social responsibility authority.





Environmental  
Responsibilities



Social  
Responsibilities



Market  
Responsibilities



Responsibility  
Management

## Case

### China Resources Power participated in the Beijing Expo of corporate social responsibility

CR Power participated in the first "Beijing Expo of Corporate Social Responsibility" held by China Social Responsibility 100 Forum on November 7 to 8, 2017. CR Power was granted such honors as a Five-star Enterprise in the CSR development index of China's power industry and the Prize for the Most Beautiful Poverty Relief Picture. In its carefully designed booth, CR Power presented its innovation, transformation and green development status

through animated propaganda films, display boards, sustainable development reports and forums. The representatives from the government, other enterprises, and industry experts and media paid great attention to us and actively participated in interactive Q&A sessions, such as general knowledge for power safety and conservation, basic information of CR Power, to win the Power dolls.



First Beijing Expo of corporate social responsibility



Booth of China Resources Power



Interactive Q&A



Presentation of sustainable development report



Granted with the Most Beautiful Poverty Relief Picture



Participating in discussion of social responsibility topics





# Major Honours for Social Responsibility

No.	Honorary title	Winner	Conferred by	Date
1	IAIR Awards "Leading Company of the Year, Energy Sector, China"	China Resources Power Holdings Company Limited	International Alternative Investment Review (IAIR)	February 2017
2	Best IR Company	China Resources Power Holdings Company Limited	Hong Kong Investor Relations Association	May 2017
3	Ranked 775th in Forbes Global 2000 for Largest Public Companies	China Resources Power Holdings Company Limited	Forbes	May 2017
4	Best Listed Energy Company in 2017	China Resources Power Holdings Company Limited	Hong Kong Business	July 2017
5	Ranked 71st in Top 250 Global Energy Companies	China Resources Power Holdings Company Limited	Platts	September 2017
6	Asian Power Awards "Power Utility of the Year – China", "Independent Power Generator of the Year – China"	China Resources Power Holdings Company Limited	Asian Power	September 2017
7	Internal Audit Advanced Entity in China (2014-2016)	China Resources Power Holdings Company Limited	China Institute of Internal Audit	October 2017
8	Social Caring Awards for Enterprise Excellence	China Resources Power Holdings Company Limited	Social Enterprise Research Institute (SERI)	November 2017
9	Hong Kong Green Awards "Corporate Green Governance Award – Management System Award", "Sustained Performance 3 Years +", "Environmental, Health and Safety Award–Platinum", and "Green Management Award (Corporate)–Silver"	China Resources Power Holdings Company Limited	Hong Kong Green Council	December 2017
10	Asian Power Awards "Wind Power Project of the Year"	Ningxia Haiyuan Xihuashan Wind Power Farm	Asian Power	September 2017
11	Asian Power Awards "the Best Environmental Protection Upgrade and Modification Project of China"	Guangzhou China Resources Thermal Power Co., Ltd.	Asian Power	September 2017
12	Asian Power Awards "Power Plant Modification and Upgrade Project of the Year"	Xuzhou China Resources Power Co., Ltd.	Asian Power	September 2017
13	US Energy Awards "the Best Wind Power Project in the World"	Ningxia Haiyuan Xihuashan Wind Power Farm	PennWell Corporation	December 2017
14	The second Prize for US Energy Awards "Global Best Coal-fired Power Plant of the Year"	China Resources Power (Hezhou) Co., Ltd.	PennWell Corporation	December 2017
15	The second Prize for US Energy Awards "Global Best Cogeneration Project of the Year"	Cangzhou China Resources Thermal Power Co., Ltd.	PennWell Corporation	December 2017
16	Five-star certification in NOSA occupational health, safety and environmental management system	Yunnan China Resources Power (Honghe) Co., Ltd. Xuzhou/Tongshan China Resources Power Co., Ltd.	NOSA	March and December 2017
17	The 6th Advanced Entity for National Power Industry Equipment Management Works	Henan China Resources Power Shouyangshan Co., Ltd.	China Electrical Equipment Management Association	March 2017
18	The Second Prize for National Thermal Power 1000MW Ultra-supercritical Unit	Tongshan China Resources Thermal Power Co., Ltd.	China Electricity Council	May 2017
19	The Second Prize for the National Thermal Power 600MW Supercritical Water-cooled Unit Competition	No. 1 unit of Henan China Resources Power Shouyangshan Co., Ltd., No.3 unit of China Resources Power Dengfeng Co., Ltd., and No.2 unit of Jiangsu Nanre Power Generation Co., Ltd.	China Electricity Council	May 2017



No.	Honorary title	Winner	Conferred by	Date
20	The Second Prize for the National Thermal Power 300MW Subcritical Pure Coagulation and Water-cooling Unit	No.1 and No.2 unit of China Resources Power Dengfeng Co., Ltd., and No.2 unit Xuzhou China Resources Power Co., Ltd.	China Electricity Council	August 2017
21	Youth Civilization of State-owned Enterprise for 2015 - 2016	China Resources Power (Changshu) Co., Ltd.	League Work Committee of Central Enterprises	August 2017
22	Top 100 Enterprises in Power Industry for Energy Conservation and Environment Protection	China Resources Power (Heze) Co., Ltd.	China Energy Conservation Association, China Energy News	September 2017
23	Advanced Entity for Thermal Control Technology Innovation Management in Power Industry	China Resources Power (Heze) Co., Ltd. Jiangsu Zhenjiang Power Generation Co., Ltd.	China Electricity Technology Market Association	September 2017
24	Advanced Power Plant in Power Industry for Chemical Supervision	China Resources Power Tangshan Fengrun Co., Ltd.	China Electricity Technology Market Association	November 2017
25	Award for Power Safety and Emergency Management Innovation Achievement in China for 2017	Nanjing China Resources Thermal Power Co., Ltd.	China Electricity Council Science and Technology Development Service Center	November 2017
26	The Luban Prize for Construction Project	China Resources Power (Wenzhou) Co., Ltd.	Ministry of Housing and Urban-Rural Development/ China Construction Industry Association	November 2017
27	National High-quality Project Award (2016-2017)	China Resources Power Jiaozuo Co., Ltd. China Resources Power (Bohai New Area) Co., Ltd.	China Association of Construction Enterprise Management	December 2017
28	2016 National Key Enterprises Tax Source Survey Express Advanced Unit	Henan China Resources Power Gucheng Co., Ltd.	Henan provincial finance department	January 2017
29	Advanced Entity for Prevention and Control of Occupational Diseases	Xuzhou China Resources Power Co., Ltd.	Jiangsu Provincial Center for Disease Control and Prevention	February 2017
30	Advanced Entity in Henan Provincial Energy-saving and Emission Reduction Competition	Henan China Resources Power Gucheng Co., Ltd.	Federation of Trade Unions Hunan Branch, NDRC Henan Branch, Henan provincial environmental protection department	March 2017
31	Liaoning Grid-friendly Wind Power Plant	Longgang Wind Power Plant of Northeast China New Energy Operation & Maintenance Company, Guben Wind Power Plant	State Grid Liaoning Power Schedule and Control Center	April 2017
32	Water-saving Enterprise in Hebei province	Cangzhou China Resources Thermal Power Co., Ltd.	Hebei provincial water conservancy department, Hebei provincial industry and information technology department, Hebei provincial water-saving office	May 2017
33	Grade A Safety Quality Standard Mine of Shanxi Province	China Resources Liansheng Guanjiaya Coal Mine, Chejiashuang Coal Mine, Maodi Coal Mine, Huangjiagou Coal Mine, Sucun Coal Mine	Shanxi Provincial Department of Coal Industry	May 2017
34	2017 Quality Benchmark of Guangxi Industrial Enterprises	China Resources Power (Hezhou) Co., Ltd.	Guangxi Zhuang Autonomous Region Committee of Industry and Information Technology	November 2017




# Future Outlook

In 2018, the complicated market environment not only presents new challenges, but also carries new opportunities. We will closely focus on the theme of our strategy, annual business plan and key management targets, further accelerate the development of renewable energy, increase the proportion of clean energy, accelerate the expansion of power retail and comprehensive energy service businesses and promote the transformation and development of the Company. We will also continue to drive improvement in energy-saving technology, and enhance the coal power efficiency and competitiveness. In addition, we will promote the "one policy for one mine, lean operation and healthy development" program and abandon the bad and keep the good practices. Moreover, we will actively and steadily promote overseas businesses and extend the value chain. Diversified measures will be taken to finance the emerging businesses and optimize the business structure. Last but not least, we will strengthen the scientific and technical innovation, create operation and management excellence systems, and improve the profitability, risk control capacity and core competence of the Company, so as to fully realize all missions and targets of the Company in 2018.

 <p><b>Shareholders' responsibilities</b></p>	<p><b>Target</b></p> <ul style="list-style-type: none"> <li>• Optimise business and asset structure and quality</li> <li>• Steady development in the future growth in operation results</li> </ul>	<p><b>Measures</b></p> <ul style="list-style-type: none"> <li>• Optimise business structure to accelerate clean energy development; optimise inventory and strengthen system cost control to increase investment returns and competitiveness</li> <li>• Promote the full coverage of strategic regional power retail companies, maintain market leadership in provinces where power retail has already been carried out, accelerate the construction of cloud platform of power retail, and actively expand comprehensive energy services such as distributed energy, intelligent micro-grid, and energy efficiency services</li> <li>• Leverage on our power construction and operation experience, output technology and management capabilities, actively and steadily drive our international business</li> <li>• Strengthen corporate governance as well as integrity compliance and risk control system construction, to ensure legally compliant operations of the Company as well as the quality and healthy growth of the Company's assets and realise the value preservation and appreciation of inherent assets</li> <li>• Deepen lean management, promote the construction of benchmark plants, improve the operation and management level to drive the internal growth of the Company</li> <li>• Strengthen research into technology and the industry, focused on policy research, industry research and determination, as well as new technology tracking and promotion, actively promote research and development of technological innovation and transformation of research results</li> </ul>
 <p><b>Environmental responsibilities</b></p>	<p><b>Target</b></p> <ul style="list-style-type: none"> <li>• Standard coal consumption rate no higher than 302.8g/kWh</li> <li>• Maintain that sound corporate image not to be adversely affected by ecological and environmental incidents</li> <li>• Ensure that major pollutant emissions meet standards and eliminate incidents in environmental reporting and assessment</li> <li>• Improve the percentage mix of clean energy capacity</li> </ul>	<p><b>Measures</b></p> <ul style="list-style-type: none"> <li>• Vigorously promote the development of wind power, complementary multiple energy sources and other new energy projects, optimise the business structure and increase the proportion of clean energy capacity</li> <li>• Newly built projects will be equipped with optimal designs to ensure that the most energy-saving and environmentally-friendly equipment and technologies are used, to lay a foundation for the following economic and environmentally-friendly operation</li> <li>• Perform environmental assessment and ecological protection well in project construction</li> <li>• Operate environmentally-friendly equipment in strict accordance to national regulations, to ensure discharge is up to standard</li> <li>• Increase capital investment in energy saving and environmental protection and accelerate the "ultra-low emissions" transformation of coal-fired units, to further reduce energy consumption and pollution emissions targets</li> </ul>



 <p><b>Communities' responsibilities</b></p>	<p><b>Target</b></p> <ul style="list-style-type: none"> <li>Help enterprises and local communities develop in harmony and achieve win-win situation</li> </ul>	<p><b>Measures</b></p> <ul style="list-style-type: none"> <li>Strictly comply with national laws and regulations and government regulations by paying taxes and operating according to law</li> <li>Implement local employment policies by creating employment opportunities for local residents</li> <li>Promote the local economic and social development by making local purchases and investing in appropriate projects combining the local and enterprise characteristics</li> <li>Enhance communication and exchanges with communities, actively participate in enterprise and local government joint construction and charitable activities; carry out poverty relief and help with the local poverty relief programs</li> </ul>
 <p><b>Customers' responsibilities</b></p>	<p><b>Target</b></p> <ul style="list-style-type: none"> <li>Provide safe, stable, clean, efficient and affordable electricity and heat, coal and the relevant services</li> <li>Improve service standards, meet personalized demands and improve service level</li> </ul>	<p><b>Measures</b></p> <ul style="list-style-type: none"> <li>Strengthen equipment reliability management, to ensure safe and stable operation and reliable electricity, heat energy supply</li> <li>Develop clean energy, enhance the capital and technical investment in energy saving and environmental protection to ensure cleanness and high efficiency</li> <li>Enhance the system cost control and bidding ability to provide customers with affordable products</li> <li>Improve and optimize product portfolio through technologies according to customer demand, so as to meet the personalized demands of customers and develop core competence</li> <li>Improve product and service quality control systems, improve product quality and customer service capacity, and optimize the customer complaint handling and improvement system</li> </ul>
 <p><b>Employees' responsibilities</b></p>	<p><b>Target</b></p> <ul style="list-style-type: none"> <li>Eliminate major safety accidents</li> <li>Improve employee engagement</li> </ul>	<p><b>Measures</b></p> <ul style="list-style-type: none"> <li>Define systems and responsibilities and carry out compliance audits to improve the three-grade preplan system; promote the construction of NOSA and EHS demonstration bases and enhance safety awareness of employees; establish a major risk information database and a related EHS management platform to enhance the EHS management and control ability</li> <li>Conduct strict supervision and inspection and carry out special EHS inspection to establish an EHS integrity management system; strengthen risk prevention and control and carry out special treatment for occupational health facilities at the production site, to strengthen supervision and management of coal mine safety</li> <li>For new energy projects, we will deepen the construction of centralized operation and maintenance system, reduce the number of field employees, and create a good working environment for employees</li> <li>Continue to improve staff training, compensation, performance management and the mechanisms to train, select, promote and communicate with employees, and promote the implementation of mechanisms to stimulate the vitality of the organization</li> <li>Abide by national laws and regulations, protect the legitimate rights and interests of employees, care about employees' lives, and carry out rich and varied cultural and sports activities</li> </ul>



# Key Performance Index

## Development performance

Performance Index	Unit	2013	2014	2015	2016	2017
Total assets	HK\$ bn	213.865	225.648	208.086	200.111	220.972
Gross generation	bn kWh	189.980	190.866	196.121	196.773	201.613
Total heat supply	kGJ	44,889.08	52,119.99	59,025.68	65,190.50	73,831.28
Attributable installed capacity	MW	26,921	31,331	34,731	36,184	36,077
Raw coal output (Subsidiary and associate coal mines)	million tons	14.62	11.65	13.90	14.74	15.02

## Economic performance

Performance Index	Unit	2013	2014	2015	2016	2017
Turnover	HK\$ bn	69.582	70.681	71.436	66.213	73.312
Operating profit	HK\$ bn	17.505	15.220	20.008	16.355	12.480
Net profit attributable to owners of the Company	HK\$ bn	11.016	9.215	10.025	7.708	4.623
Return on invested capital (ROIC)	%	9.60	9.30	10.40	7.30	5.30
Return on equity (ROE)	%	18.51	13.57	14.15	11.02	7.70
Asset-liability ratio	%	60.38	61.98	59.76	62.74	63.46
Debt to capitalization ratio	%	52.2	53.9	51.4	55.1	55.7
Ratio of value maintenance and appreciation of state-owned assets	%	120.2	108.9	100.2	97.3	109.0
Operating net cash flow	HK\$ bn	23.188	26.500	31.989	22.295	18.562
Number of new patents	Item	47	6	39	40	50

## Environmental performance

Performance Index	Unit	2013	2014	2015	2016	2017
Purchased electricity <sup>(Note 3)</sup>	million kWh	77.21	152.26	123.82	126.34	106.34*
Clean energy mix of attributable installed capacity	%	11.99	12.48	13.28	14.15	17.36
Net generation coal consumption rate <sup>(Note 3)</sup>	g/kWh	315.19	310.53	306.98	305.00	303.16*
Power consumption rate of power plants	%	5.21	5.04	5.00	4.95	4.99
Power consumption rate of factories	%	5.97	5.86	5.79	5.75	5.67
Installation rate of desulphurization device in coal-fired thermal power plants (%) <sup>(Note 1, 3)</sup>	%	100.00	100.00	100.00	100.00	100.00*



Performance Index	Unit	2013	2014	2015	2016	2017
Installation rate of denitrification device in coal-fired thermal power plants (%) <sup>(Note 1, 3)</sup>	%	79.93	100.00	100.00	100.00	100.00*
Total investment in environmental protection	RMB bn	0.726	0.763	1.706	1.798	1.957
Investment in energy conservation, emissions reduction and technical transformation	RMB bn	0.669	0.728	1.586	1.776	1.697
Nitrogen oxides emissions <sup>(Note 3)</sup>	10,000t	N.A.	N.A.	4.26	3.22	2.86*
Nitrogen oxides emission rate <sup>(Note 2, 3)</sup>	g/kWh	0.96	0.51	0.26	0.2	0.17*
Sulphur dioxide emissions <sup>(Note 3)</sup>	10,000t	N.A.	N.A.	3.37	2.11	1.72*
Sulphur dioxide emission rate <sup>(Note 2, 3)</sup>	g/kWh	0.43	0.32	0.22	0.13	0.10*
Carbon dioxide emissions	10,000t	N.A.	N.A.	N.A.	N.A.	13729.27
Emission intensity of carbon for thermal power generation <sup>(Note)</sup>	g/MWh	N.A.	N.A.	N.A.	N.A.	0.844
Particulates emissions <sup>(Note 3)</sup>	10,000t	N.A.	N.A.	0.70	0.34	0.23*
Particulates emission rate <sup>(Note 2, 3)</sup>	g/kWh	0.14	0.07	0.04	0.02	0.01*
Chemical oxygen demands	Ton	56.13	42.97	63.26	89.8	153.79
Natural gas consumption <sup>(Note 3)</sup>	Million cubic meters	162.49	168.52	162.58	193.59	198.21*
Diesel consumption <sup>(Note 3)</sup>	Million litres	10.50	12.11	17.82	18.75	17.76*
Coal consumption <sup>(Note 3)</sup>	10,000t	7299.00	7022.00	7158.00	7476.65	7815.03*
Comprehensive water consumption for power generation	10,000t	27461.47	28422.16	28518.66	25259.88	27516.16
Comprehensive water consumption rate of power generation	kg/kWh	1.79	1.84	1.78	1.51	1.60
Water consumption per RMB 10,000 industrial added value	Ton	133.72	128.68	96.51	108.25	159.38
Energy consumption per RMB 10,000 industrial added value	Ton of standard coal	11.79	10.79	9.81	11.61	15.12
Wastewater discharge	10,000t	N.A.	N.A.	N.A.	N.A.	332.40
Wastewater discharge rate	g/kWh	23.73	22.66	31.88	24.79	19.30
Total integrated utilisation of ash	10,000t	N.A.	N.A.	N.A.	N.A.	1,565.32
Integrated utilisation rate of ash	%	96.70	97.60	96.55	97.39	94.55
Comprehensive energy consumption	10,000t of standard coal	2966.53	2974.31	3064.72	2955.38	3005.15
Total amount of hazardous waste generated	10,000t	N.A.	N.A.	N.A.	N.A.	0.42
Density of hazardous waste generated	kg/million kWh	N.A.	N.A.	N.A.	N.A.	0.0024
Total amount of harmless waste generated	10,000t	N.A.	N.A.	N.A.	N.A.	2,005.53
Density of harmless waste generated	kg/kWh	N.A.	N.A.	N.A.	N.A.	0.12

Note: The number for 2017 is calculated according to the Accounting and Reporting Requirements for Greenhouse Gas Emissions Part I: Power Generation Enterprises (GB/T32151.1—2015, effective from June 1, 2016) issued by the General Administration of Quality Supervision, Inspection of the People's Republic of China and Quarantine and Standardization Administration of the People's Republic of China.

"N.A." indicates that the index system has not been included in the corresponding annual report. With the introduction of relevant new standards in recent years, new statistics have been added.



# Key Performance Index

## Social performance

Performance Index	Unit	2013	2014	2015	2016	2017
Total taxes paid	RMB bn	1.097	0.913	9.913	9.309	7.712
Major equipment accidents	No. of accidents	0	0	0	0	0
General equipment accidents	No. of accidents	0	0	0	0	0
Personal injury and death accidents	No. of accidents	1	6	5	3	5
Unplanned outage	Times per unit	25	21	29	20	25
Equivalent availability factor	%	91.17	92.08	91.35	90.54	92.77
Safety management personnel with certificates	Person	N.A.	1,634	1,771	1,831	1,866
Certified safety engineers	Person	N.A.	132	170	200	209
Total employees (excluding associated companies)	Person	43,990	43,235	39,728	33,604	29,827
Female employees	Person	6,211	6,413	6,550	5,673	5,277
Employed people with disabilities	Person	10	10	10	10	10
Employees of ethnic minorities	Person	863	999	1,001	949	934
Social security coverage	%	100	100	100	100	100
Total investment in employee training	RMB mn	13.82	14.02	7.17	9.82	11.16
Training coverage	%	89	91	89	82	100
Health check coverage	%	100	100	100	100	100
Paid holidays per person	Day	8	8	8	8	8
New employed graduates	Person	615	662	523	411	297
New employment	Person	8,067	10,628	4,866	2,283	2,252
Charitable donations	RMB mn	103.71	41.06	11.82	95.52	4.69
Volunteer activities	Person	4,590	4,873	5,100	5,328	3,787

Note 1: Installation rate of desulphurization device in coal-fired thermal power plants (%): The number of installed desulphurization devices in coal-fired power plants over the total number of coal-fired power plants.

Installation rate of denitrification device in coal-fired thermal power plants (%): The number of installed denitration devices in coal-fired power plants over the total number of coal-fired power plants.

Note 2: Sulphur dioxide emission rate (g/kWh): Sulphur dioxide emission per unit power generation

Nitrogen oxides emission rate (g/kWh): Nitrogen oxides emission per unit power generation

Particulates emission rate (g/kWh): Particulates emission per unit power generation

Formula for calculating emission rate: emission rate=total emission/total electricity generated

Note 3: Third party performed an independent limited assurance of performance index marked with “\*” and the emission rate is calculated based on the data recorded in Continuous Emission Monitoring System which is installed and used in the thermal power plants (as identified by Δ) that are wholly-owned, controlled and managed by China Resources Power Holding Co., Ltd. (see P.15 for details). For the third-party assurance report, please refer to P.6-7. The emission rates of nitrogen oxides, sulphur dioxide and particulates from 2015 to 2017 are calculated based on Continuous Emission Monitoring System, while those of 2013 and 2014 are based on the internal N31 system of the Company.



# Testimonials of Stakeholders

## Government Testimonials



**Luo Huining**

**Secretary of Shanxi Provincial Party Committee**

CR Power has been maintaining good cooperation with Shanxi province, and in particular, great results have been achieved in coal businesses. Shanxi province is now in the critical moment of reform and development. China Resources Coal played a significant role in driving the supply-side structural reform and reduce excessive production capacity of Shanxi province. In the future, Shanxi province will continue to create good investment environment, provide high-quality service and practically solve the problems that the enterprises encounter during their investment and development. Both parties are expected to have deeper and more extensive cooperation, in order to achieve development together.



**Ma Qiulin**

**Vice governor of Jiangsu Province**

Faced with the serious situations that the electricity enterprises encountered, CR Power's Jiangsu Region actively enhanced the judgment and evaluation on the policies and the market, participated in the electricity system reform, and further enhanced the energy saving, emission reduction, and quality and efficiency improvement works, thus making great contribution for the economic and social development of Jiangsu. The Jiangsu provincial government will continue to support the development of China Resources in Jiangsu, with the expectation that China Resources can exert its multi-industry synergy, enhance innovation, and accelerate the development of new business modes, so as to make greater contribution for the development of Jiangsu.



**Song Yilin**

**Secretary of Yanshi Municipal Party Committee, Henan Province**

Many thanks to CR Power for its great effort and contribution for the economic development of Yanshi city! Shouyangshan power plant is hailed as the most beautiful power plant in China, featuring beautiful environment, excellent management, and great economic benefit. It is in harmonious coexistence with the economic and social development of Yanshi city. The transformation and upgrade of conventional industry is the most important issue of the society at the moment. Shouyangshan Project has set a good example for this. Yanshi municipal government will provide full support for the heat supply pipes, waste power generation projects, VIP power supply and wind power development projects of Shouyangshan power plant, in order to facilitate the efficient development of the projects of CR Power in Yanshi.



**Yang Hui**

**Secretary of Cangzhou Municipal Party Committee, Hebei Province**

CR Power and Cangzhou city have a long history of cooperation and maintain good partnership. Heat supply in winter is the top priority in our work for ensuring and improving people's wellbeing and is closely related to the vital interests and warmth index of the public. Cangzhou China Resources Thermal Plant has been making great contribution for the central heat supply of Cangzhou. CR Power plans to invest in biomass power generation and PV power generation projects in Cangzhou. It is a new energy mode benefiting the nation and the people. Both parties are expected to further deepen the diversified strategic cooperation and achieve mutual benefit and win-win situation.



**Ou Guowei**

**Secretary of Lianzhou Municipal Party Committee, Guangdong Province**

CR Power never forgot to fulfill its social responsibilities during its operation and development. It drove, helped and supported local economic and social development through practical measures. We hope that CR Power will continue to greatly invest in new energy projects such as wind power and PV power construction projects according to the industry development policies of Lianzhou and the market demand for the development of environmental protection and new energy industries, so as to build an important environmental protection and new energy industry base in North Guangdong. Lianzhou municipal government will create a good investment environment, actively coordinate the resources and perform well in all services and protection works, and help solve the difficulties and problems incurred during the development and construction, so as to facilitate the implementation of the projects as soon as possible.





# Testimonials of Stakeholders

## Media Testimonials



Guided by green concept and by benchmarking with the first class enterprises in the industry, China Resources Haifeng Power Plant constantly improved the energy conversion efficiency, reduced pollutant emission and promoted the development of recycling industry. It actively introduced new concepts, new ideas and new technologies and applied the new ideas, such as "Internet+", "One Belt One Road", flexibly into the operation and development process of the conventional thermal power enterprise, with an aim to seek for the best combination point of value creation and ecological protection. While ensuring good results in thermal power project operations, the company targeted at such new businesses as "incremental distribution network", "energy internet", "multi-energy complementary smart city", and "power generation based on the combination of sludge, garbage and coal", trying to achieve a wonderful transformation from conventional power generation enterprise to an integrated energy supplier.



Xuzhou China Resources is the first power plant of China Resources Power. For all these years, Xuzhou China Resources has been adhered to the green and efficient development road. It invested more than RMB100 million every year to increase its energy saving and emission reduction level, with an aim to create a resource-saving and environment-friendly enterprise. To actively implement the technical innovation project launched by China Resources Power (Holdings) Company Limited, the "integrated energy-saving upgrade and modification project for subcritical generation units", Xuzhou China Resources will invest RMB 300 million to complete the modification of one subcritical generation units featuring excellent operation index and advanced energy-saving technologies by 2019, so as to reduce the coal consumption of the generation units by 20g/kwh.



Not far from Southwest of the central urban area of Tangshan city, Hebei province, there is an eye-catching football field size white shed. This cocoon-shape enclosed building is actually the coal storage yard of CR Power's Tangshan Fengrun Power Plant, and the enclosed coal yard with the largest span in China. Compared with open coal yard, this design is not only beautiful, but also helpful to reduce dust pollution, since the coal sludge processing equipment can be deployed inside the enclosed dry coal shed. There are many technical innovations for environmental protection and energy saving in Tangshan Fengrun Power Plant.



The Ningbian PV power station of China Resources was built on the mountain top of Dazhaizi Village, Zhaoyang District, Zhaotong City, Yunnan, with an altitude of more than 3000m. When the construction of PV power station is completed and put into operation, it will play a significant role in optimizing the local energy structure, promoting energy saving and emission reduction and improving economic conditions. As a new energy enterprise, Ningbian PV power station is shouldered with the mission of saving energy, reducing emission and reducing pollution. It not only keeps increasing the generating capacity via safe production management, but also makes great efforts to promote the development of the low-carbon and green economy in Zhaotong city.



In the past, when the mines of Shanxi were mentioned, people's first impression was its dirty, disordered, bad and severely polluted environment. However, with the joint efforts of Shanxi provincial government and the mining enterprises, the label of "pollution" no longer exists. China Resources Guanjiaya Coal Mine implemented the green development concept and actively demonstrated its commitment in environmental protection. It has invested RMB13.58 million in total for environmental protection projects. According to the evaluation and monitoring conducted by Shanxi Huadu Environment Monitoring Company Limited on the performance of the mine in line with the pollution source index in June 2017, it fully complied with the requirements of Integrated Emission Standards of Pollutants and Pollution Source Emission Standards for Coal Industry in all the relevant indexes.



As the key large thermal power plant for the power grids of Zhengzhou and Central Henan, China Resources Dengfeng Power Plant, with an installed capacity of 1920MW, made great achievements in green operation and environmental protection. It was the first to complete the installation for ultra-low emission modification in the province, and realized near-zero waste gas emission and zero emission of waste water and solid wastes, surpassing the gas fired power plants in all the environmental protection indexes, and reached world advanced levels. It established a benchmark in the industry, with its advanced safe production management systems, mature enterprise operation management modes and proactive energy saving and environmental protection responsibility and awareness widely replicated and promoted by many enterprises and peers in Dengfeng city.



## Employees' Evaluation



**Zhang Xiaoyi**  
HR management  
**Nanjing Chemistry  
Industrial Park  
Thermoelectricity Co.,  
Ltd.**

It's been nearly 3 years since I joined CR Power. Here, I've seen silhouettes finishing their night shifts at early dawn when the first sunlight shines through the window blinds of the machine room; silhouettes sweating from opening valves walking in the golden sunset glow; silhouettes painting pipes in standard colours among the equipment at the first snowfall. They are all part of the best scenery. It is CR Power that has taught me to be down to earth, work hard with enthusiasm and do not waste even one day.



**Dai Xiang**  
Wind Turbine engineer  
**Suizhou branch of  
China Resources New  
Energy Investment  
Co., Ltd**

When CR Power entered Suizhou area in Hubei in 2012, many locals heard CR Power for the first time. Five years later, the installed capacity of CR Power's new energy business has reached over 400 MW, and CR Power has become a renowned company in the area. As the company gradually develops, I am also growing fast. When the locals mention CR Power again, all they show is admiration. I can declare that I am a member of CR Power with pride!



**Wang Yubing**  
Head of maintenance of  
the pumping team  
**Shanxi China  
Resources Daning  
Energy Co., Ltd**

At the mine frontline, my main responsibilities are to maintain thousand-meter drilling rigs for gas drainage and ensure the equipment work normally. Because I've worked at the frontline of mine maintenance for a long time, everybody calls me "Doctor Mine", but I know well that I can improve my maintenance skills only because the company has provided a good platform and a great number of training, outdoor practices and expert guidance opportunities. In this big group, every one of us is growing while learning. I give the best wishes to the steady and healthy development of our company.



**Yin Husheng**  
Shift lead  
**Lanxian CR Power  
New Energy Co., Ltd**

On June 27th, 2017, Lanxian PV power station was successfully connected to the grid! I clearly remember the people in the control room burst into cheers, with happiness and excitement written on their faces. The primary task after the power station was connected to the grid was to ensure the safe and stable operation of the power station and equipment. Despite high temperature, everybody carefully carried out inspection and thorough monitoring to increase the equipment's availability. Seeing the power station growing stronger every day and clean energy being transferred to thousands of households, we believe that all our efforts are worth it, with no complaints nor regrets.



**Zheng Lixia**  
Filing Management  
**Sichuan Yazuihe  
Hydropower  
Development Co., Ltd**

Time flies! It has been 10 years since I joined China Resources. Every time my friends or relatives ask me where I work, I proudly tell them that I work at China Resources and tell them about the history of China Resources and the development of CR Power. I want to tell everybody around me about China Resources so that they can remember China Resources well. As a basic employee in the power industry, I believe that China Resources will become better and better.



**Yang Jinglu**  
Product and  
technology management  
**CR Power information  
management  
department**

In this year, I have seen that the higher demand of informatisation in company development. Based on the people-oriented principle, we continue to improve user experience during system construction, making office work more convenient; based on the principle of innovating while being practical, we continue to expand the platform content during website group construction to take advantage of brand communication values. I am lucky to have the opportunity to spend my golden times at CR Power, a company with honourable traditions and pursuit of good things as well as witness and participate in the transformation and innovative development of CR Power. I hope that I will be here witnessing the development of CR Power.



# Appendices

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# Appendices

## Rating Report on the Sustainable Development Report 2017 of China Resources Power Holdings Company Limited

Upon the request of China Resources Power Holdings Company Limited, the "Chinese Expert Committee on CSR Report Rating" invited experts to form a rating team to rate the "Sustainable Development Report 2017 of China Resources Power Holdings Company Limited" (hereinafter referred to as the "Report").

### I. Basis of rating

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR3.0) - Power Enterprises, Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0) - Basic Framework, and Rating Standard on Corporate Social Responsibility Reporting for Chinese Enterprises (2018).

### II. Rating process

1. The panel for process appraisal interviewed the key members of the Report preparation team and examined materials related to the preparation process;
2. The rating team drafted the rating report based on its appraisal of the preparation process and information disclosure of the Report;
3. The rating report was submitted to and signed by both the vice-chairman of the Expert Committee and the head of the rating team.

### III. Rating results

#### Process Management (★★★★★)

The Office took the lead in setting up the report preparation team, and the senior leaders of the Company were responsible for controlling the reporting key points and reviewing the Report. The Report was defined by the Company as the tool to improve and enhance responsibility management, and a comprehensive reporting system was established. Standardized management of the corporate social responsibility works was carried out in accordance with the Social Responsibility Management Standard for CR Power. The substantial issues were identified based on the major corporate matters, relevant national policies, industry benchmarking analysis, stakeholder questionnaire survey and professional workshops. The Company planned to release the Report on the "Green Development Responsibility Forum & Sustainable Development Report 2017 Release Conference of CR Power" and to present the print, online and WeChat versions of the Report in Chinese and English, achieving outstanding performance in the aspect of process.

#### Materiality (★★★★★)

The Report systematically disclosed the key issues in the power industry relating to implementing macro policy, guaranteeing power supply, work safety management, promoting green power, environmental assessment on construction projects, saving energy and resources, decreasing the discharge of "Three Wastes", developing circular economy and governing the environmental issues of the plants and surrounding areas. The description was adequate and detailed, achieving outstanding performance in the aspect of materiality.

#### Completeness (★★★★★)

The Report systematically described the concepts, systems, actions and results of the Company in performing its social responsibilities for the environment, society, market and responsibility management, and disclosed 93.6% of the core indicators of the power industry, achieving outstanding performance in the aspect of completeness.

#### Balance (★★★★☆)

The Report disclosed negative indicator information such as the numbers of "major equipment accidents", "general equipment accidents", "personal injury and death accidents", "unplanned outages" and "high-risk issues", achieving outstanding performance in the aspect of balance.

#### Comparability (★★★★★)

The Report disclosed data for 84 key indicators for 3 consecutive years and above including "attributable installed capacity", "total taxes paid", "operating profit", "research input", "total investment in environment protection" and "equivalent availability factor", and conducted horizontal comparison on the data such as "annual return on invested capital", "comparable market share of power sold" and "employee engagement", achieving outstanding performance in the aspect of comparability.

#### Readability (★★★★★)

The Report extended the theme of "Refreshing Life with Green Energy" and adopted the four seasons (spring, summer, autumn and winter) as the main lines for storytelling, reflecting the deep understanding and the pursuit of values of the Company in the performance of social responsibilities in a clear, comprehensive and innovative way. QR code was included to demonstrate the outstanding responsibility management practices of the Company, and the performance characteristics of the Company were presented through many "responsibility stories", so as to enhance the transmission and communication effect of the Report. The cover creatively adopted artistic silhouette to depict the report theme, while for the body design, the ideas of ink paintings and diversified "windows" were employed, which not only enhanced the transmission effect of the responsibility performance concepts, but also vividly demonstrated the performance vision and development mission of the Company. The overall style was simple and elegant, while diversified expressions were adopted with images and texts complementing each other, which enhanced the readability and reflected the profound foundation of the Company in responsibility performance at the same time. The Report achieved outstanding performance in the aspect of readability.

#### Innovativeness (★★★★★)

The Report increased the engagement of the internal and external stakeholders and effectively enhanced the accuracy of the identification of substantial issues by carrying out extensive questionnaire survey. The Company actively engaged external professional institutions to verify and examine the key quantitative performance, and strengthened the overall review on the report data, thus effectively improving the compliance and reliability of the Report. Innovative report transmission and communication methods were adopted. By holding green development responsibility forum and special report release conference, the Company enhanced the communication value of the Report and its image as a responsible enterprise. The Report achieved outstanding performance in the aspect of innovativeness.

#### Overall rating (★★★★★)

According to the assessment of the rating team, the "Sustainable Development Report 2017 of China Resources Power Holdings Company Limited" was awarded a rating of five-star. It is an outstanding CSR report.

### IV. Suggestions for improvement

The disclosure of the analysis on the performance weakness of the Company shall be increased, so as to further improve the reporting balance.

#### Rating team

Team leader: Wang Zhixuan, member of leading party group and full-time vice-chairman of China Electricity Council  
Team members: Zhang En, deputy executive director of Research Center for Corporate Social Responsibility, Economics Division, Chinese Academy of Social Sciences  
Process evaluator: Wang Zhimin



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

魏紫川

Vice-chairman of Chinese  
Expert Committee on CSR  
Report Rating

王志刚

Rating team leader



Scan QR code to view the  
rating file of the Company

Date of issuance: June 13, 2018



## Readers' Feedback

Dear reader,

Thank you for taking the time to read Sustainable Development Report 2017 of China Resources Power Holdings Company Limited. To improve our work on social responsibility and preparation of the report, we would like to hear your valuable comments and suggestions. Please answer the following questions and submit it to us via the following way:

Fax: +86-755-82691500

1. What's your overall evaluation of the report?  
☐ Very Good    ☐ Good    ☐ Average    ☐ Poor    ☐ Very Poor
2. Do you think this report reflects the material impact that CR Power has on the economy, environment and society?  
☐ Yes    ☐ Average    ☐ No
3. What's your overall evaluation of CR Power's communication with stakeholders?  
☐ Very Good    ☐ Good    ☐ Average    ☐ Poor    ☐ Very Poor
4. What's your overall evaluation of information disclosure of the report?  
☐ Very Good    ☐ Good    ☐ Average    ☐ Poor    ☐ Very Poor
5. What's your overall evaluation of the format and design of the report?  
☐ Very Good    ☐ Good    ☐ Average    ☐ Poor    ☐ Very Poor
6. What comments and suggestions do you have for CR Power in terms of its work on social responsibility and this report?

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If possible, please tell us something about yourself

Name:

Occupation:

Company:

Phone:

E-mail:

You may send your feedback by scanning the QR code on your right-hand side.

We will take your comments and suggestions seriously and protect your feedback and personal information from third-party access.





# Appendices

## Report Preparation Organising and Working Group

### Leadership Group

Group Leader:	Ge Changxin			
Vice Group Leader:	Wang Xiaobin			
Group Members:	Zhang Gang	Xu Hongbo	Zhang Caixiang	Wang Yonggang
	Wang Bo	Zuo Xuequn	Li Jun	Han Yi
	Liu Shusong	Wang Changli	Hu Xiaolei	Liang Jie
	Wang Huabing	Li Dong	An Fengyu	Wang Shiwan

### Preparation Group

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	Wang Xiangyang (Shouzheng Tendering Company Limited)	Chang Wei (Shouzheng Tendering Company Limited)	Zhang Wei (Rundian Investment Co., Ltd.)	
	Xie Yu (Rundian Investment Co., Ltd.)	Yan Mingzhu (Coal Business Division)	Zhao Zhilong (Coal Business Division)	
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	Zhao Xin (East China Region)	Zhang Ying (North China Region)	Wang Yan (North China Region)	
	Xing Qiang (Northeast China Region)	Song Longhan (Northeast China Region)	Ding Hu (Southeast China Region)	
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Special Column on Social Responsibility