



**China Power International Development Limited**  
**中國電力國際發展有限公司**

*(Incorporated in Hong Kong with limited liability)*

(Stock Code : 2380)

# ENVIRONMENTAL PROTECTION AND SOCIAL RESPONSIBILITY REPORT 2016



**CLEAN ENERGY**  
**GREEN ENTERPRISE**

# Environmental Protection and Social Responsibility Report 2016

## ENVIRONMENTAL PROTECTION

Insisting on the core value of “giving light and power to the world, leaving clear water and blue skies to our children”, the Group, by virtue of its consistent inputs for energy conservation and emission reduction, advocating the development of clean energy and actively promoting sustainable development in social, economic and environmental terms, is committed to the targets of becoming a resource-saving and environment-friendly enterprise with high proportion in clean energy, low consumption of energy and resources, and low discharge of pollutants.

### 1 Climate Change — coping strategies and actions

The PRC government places consistently strong emphasis on environmental protection and continuously improves its legislation on renewable energy. A number of environmental protection policies were promulgated with a view to enable economically sustainable development. With China officially becoming a party to the Paris Agreement in 2016 indicating a serious commitment to tackling climate change, the PRC government issued in the same year the national economic “13th Five-Year” plans for energy and power development, in which the targets for clean energy developments were specified up to 2020. In general, Chinese companies are confronting new requirements for environmental protection and social responsibilities. The Group acknowledges that it is incumbent upon, and obligatory for, energy and power companies such as the Group to actively cope with global climate change, and corresponding strategies are formulated while relevant actions are engaged.

#### 1.1 Our Strategies

##### *Aims and Directions for Development*

The Group is committed to establishing itself as a clean low-carbon integrated energy company. In order to contribute to the effective responses to global climate change, the Group’s directions for development for achieving existing goals are as follows:

- (1) Enhance the development of clean energy: continue to increase the proportion of clean energy by maintaining our lead in hydropower generation and making further progress in the development of quality wind power and photovoltaic power projects, while controlling and slowing down the development of coal-fired power.
- (2) Minimize pollution emitted by the existing coal-fired power generating units: to complete the ultra-low emission technical upgrades for coal-fired power in order to reduce the pollutants and greenhouse gases emission per unit of power generated; to enhance the efficiency of the power generating units in order to reduce the consumption of fossil fuels per unit of power generated.
- (3) Develop technological innovation: to strive for breakthroughs in the area of clean energy and low carbon emission technology with greater research and development inputs.

## *Basis of Actions*

The actions committed by the Group are based on:

- (1) Policy guidance: commitments made by the PRC government upon joining the Paris Agreement on climate change, targets as set out in the national economic “13th Five-Year” plans for energy and power of the PRC, “Air Pollution Prevention and Control Action Plan”, “Action Plan of the Upgrade and Renovation for Coal-fired Units to Achieve Energy Saving and Emission Reduction (2014–2020)”, among other policies.
- (2) Regulatory standards: “Environmental Protection Law of the People’s Republic of China”, “Air Pollution Prevention and Control Law of the People’s Republic of China”, “Emission Standard of Air Pollutants for Coal-fired Power Plants” and other environmental protection regulatory standards issued by the central and local governments.

## *Strategic Support*

The Group accelerates the implementation of its transformational strategies and strives for the developments in clean energy, integration, smart technology and international expansion. In particular, developments in clean energy were ramped up in a bid to reduce reliance on traditional energies and transform from high-carbon into low-carbon generation, which is a major component in our transformational development strategy. The established strategy of the Group strongly supports various initiatives in coping with climate change.

## **1.2 Our Works**

### *Air pollution*

In strict compliance with the “Emission Standard of Air Pollutants for Coal-fired Power Plants”, “Ambient Air Quality Standards” and other pertinent laws and regulations as well as in response to the requirements under “Action Plan of the Upgrade and Renovation for Coal-fired Units to Achieve Energy Saving and Emission Reduction (2014–2020)”, the Group effectively controlled the emission of airborne pollutants by installing dedusting, desulphurization and denitration facilities and procuring coals with less pollutant contents.

During 2016, the Group embarked upon the researches on the technical program of replacing liquefied anhydrous ammonia with urea as denitration reducing agents, with a view to further mitigating risks in production safety and environmental hazards. In particular, pre-upgrade initial works have been initiated in Dabieshan Power Plant, Wuhu Power Plant and Fuxi Power Plant.

During 2016, as part of the ultra-low emission technical upgrade for Wuhu Power Plant, the wet electrostatic dust precipitator was installed to further reduce emission of dusts, and GGH tubes were also installed to eliminate the visual pollution from white smoke plume.

## Environmental Protection and Social Responsibility Report 2016

### *Basic Measures Adopted to Reduce Air Pollution*

<b>Develop Clean Energy</b>	<ul style="list-style-type: none"> <li>Actively develop clean energy projects, such as hydropower, wind power and photovoltaic power projects</li> <li>Develop integrated smart energy projects to facilitate the developments of clean and highly effective energy in various regions</li> </ul>
<b>Strengthen Energy-saving Management</b>	<ul style="list-style-type: none"> <li>Improve fuel management by enhancing calorific value of coals-as-received and coals-as-fired for reducing fuel wastage</li> <li>Optimise operational management by reducing use of oil for start-up of generating units</li> <li>Maximise the utilization rate of generation units to prevent and minimise oil usage for low-load stable combustion</li> <li>Enhance monitoring of equipment depletion to minimise oil usage during malfunctioning of auxiliary machines</li> </ul>
<b>Promote Technology Applications of Clean Energy</b>	<ul style="list-style-type: none"> <li>Increase inputs in technical improvement with a stronger emphasis on desulphurization, denitration and capacity increase transformation, technical upgrades on high-frequency pulse electrical dedusting and techniques for demolishing the exhaust bypass</li> </ul>
<b>Responsible Production</b>	<ul style="list-style-type: none"> <li>Properly plan the production sites by planting trees and lawn, arranging sprinkler to conduct sprinkling in the plant area regularly and as needed</li> <li>Engage in constructing dry coal sheds and install additional sprinklers and dust gauze in the coal fields for dust control and improving the work environment</li> </ul>
<b>Advocate for Transparency of Environmental Information</b>	<ul style="list-style-type: none"> <li>Disclose emission information for pollutants such as sulphur dioxide, nitrogen oxide, and flue gas and dusts caused by the production sites with reference to specified environmental regulatory standards and actively accepting public scrutiny</li> </ul>

### *Exhaust gas*

As part of our upgraded environmental protection strategy, the Group embarked upon the third environmental protection technical upgrade with an aim for ultra-low emission. During 2016, 13 power generating units completed their ultra-low emission upgrades. In particular, the generating unit no. 1 of CP Shentou Power Plant completed its ultra-low emission upgrade and was granted environmental compliance approval and was also provided power incentives by Shanxi Province for its ultra-low emission upgrade. The generating unit nos. 5 and 6 of Pingwei Power Plant III also obtained a green electricity tariff of RMB27/MWh due to their desulphurization, denitration and dedusting facilities compliance. Fuxi Power Plant received a 50% discount on the flue gas and dusts discharge fee in the first quarter of 2016, indicating recognition for our improvement works for environmental protection.

## Environmental Protection and Social Responsibility Report 2016

Discharge of sulphur dioxide, nitrogen oxide, and flue gas and dusts by the Group reduced significantly benefit from our ultra-low emission upgrades, with the total discharge decreased by 2,281 tons, 1,293 tons and 679 tons as compared with the previous year, respectively.

Nature and type of discharge	Unit	2016	2015*	Decrease	Change
Density of nitrogen oxide discharge	g/KWh	<b>0.185</b>	0.212	0.027	-12.74%
Total discharge of nitrogen oxide	'000 tons	<b>8.158</b>	9.451	1.293	-13.68%
Density of flue gas and dusts discharge	g/KWh	<b>0.035</b>	0.050	0.015	-30.00%
Total discharge of flue gas and dusts	'000 tons	<b>1.538</b>	2.217	0.679	-30.63%
Density of sulphur dioxide discharge	g/KWh	<b>0.150</b>	0.198	0.048	-24.24%
Total discharge of sulphur dioxide	'000 tons	<b>6.583</b>	8.864	2.281	-25.73%
Density of carbon dioxide discharge	g/KWh	<b>802</b>	808	6	-0.74%
Total discharge of carbon dioxide	'000 tons	<b>35,783</b>	36,064	281	-0.78%

\* The figures for an associate of the Group are excluded and the comparative figures have been restated to reflect such change.

The Group also reduces the discharge of carbon dioxide and other greenhouse gases through the development of clean energy projects to cope with climate change in a proactive manner. In 2016, the Group's clean energy power generation amounted to 18,798,569MWh, representing a reduction in carbon dioxide discharge by 15,076,452 tons.

### Wastes

The Group reduces wastes discharge with the establishment of a sophisticated residue and ash disposal system and in strict compliance with the "Standard for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes". In order to recycle and reuse the wastes, the Group set out administrative measures and annual targets for the comprehensive utilization of ash powders to fully explore and realize the potential application of waste coal ashes. In 2016, the comprehensive utilization ratio of waste coal ashes in the power plants of the Group amounted to 82.96%, an increase of 2.46 percentage points from that of 2015.

## Environmental Protection and Social Responsibility Report 2016

Nature and type of discharge	Unit	2016	2015	Decrease	Change
Density of hazardous wastes discharge	g/KWh	0	0	-	-
Total discharge of hazardous wastes	'000 tons	0	0	-	-
Density of non-hazardous wastes discharge	g/KWh	24.8	30.6	5.8	-18.95%
Total discharge of non-hazardous wastes	'000 tons	1,108	1,879	771	-41.03%

### Wastewater

Each of the power plants of the Group discharged wastewater in strict compliance with national standards, including “Integrated Wastewater Discharge Standard” and “Wastewater Quality Control Index for Limestone — Gypsum Wet Flue Gas Desulfurization of Coal-fired Power Plants (火電廠石灰石 — 石膏濕法煙氣脫硫廢水水質控制指標)”, and actively implemented the “Action Plan on Prevention and Control of Water Pollution”. In 2016, the Group thoroughly investigated the utilization of water resources, in-depth desulphurization treatment of wastewater (zero-discharge of wastewater) and water recycling of each of its power plants, adopted corresponding policy for each individual power plant and strengthened the management of wastewater treatment, ensuring that the discharge is up to standard and maximizing the recycling and reuse of wastewater. In 2016, wastewater discharge significantly reduced by 1,408,400 tons.

Nature and type of discharge	Unit	2016	2015*	Decrease	Change
Discharge of industrial wastewater	'000 tons	1,843.2	3,251.6	1,408.4	-43.31%

\* The figures for an associate of the Group are excluded and the comparative figures have been restated to reflect such change.

### 1.3 Utilization of resources

#### Coal resources

The Group is engaged in in-depth optimization of its power mix and seeks to increase the proportion of coal-fired power generating units in the capacity of 600MW and above while gradually closing down those units in the capacity of 300MW or below which have high coal consumption rate. Environmental protection and energy-saving upgrades and transformation are conducted in a planned manner on existing regular coal-fired power generating units, increasing the overall utilization rate of coal resources. Meanwhile, the Group continues to enhance its management of coal sourcing by procuring quality coal with high calorific values and low sulphur contents. Development of clean energy is greatly promoted to increase the proportion of power generation of clean energy.

## Environmental Protection and Social Responsibility Report 2016

In 2016, the Group completed ultra-low emission upgrades for 13 coal-fired power generating units. The Group's net coal consumption rate in 2016 amounted to 304.93 g/KWh, a decrease of 2.15 g/KWh from last year, equivalent to a saving of approximately 90,000 tons of standard coal.

### *Water resources*

In active response to the government's requirement of conserving energy and reducing consumption, the Group conducted in-depth study on water-saving techniques. In the process of coal-fired power generation, water supply is derived from the recycled water discharged from power plant constructions by virtue of an improvement on the water supply system design, extracting no water from natural sources. The overall water consumption ratio for power generation was lowered as water resources were recycled for repeated use through optimization and modulation in the process of hydropower generation. In 2016, water consumption increased for the year from the increased use of water as a result of, among others, the utilities for the ultra-low emission upgrades implemented on the 13 power generating units and the increased use of water for final testing.

	2016	2015	Change
Total water consumption (million tons)	<b>64.36</b>	59.89	7.46%
Water consumption per unit (g/KWh)	<b>1,443</b>	1,341	7.61%

The patent "rack-cleaning harrows for trash-screening racks" invented by Wu Qiang Xi Power Plant improves efficiency of water use by using specially designed rack-cleaning harrows to wash residues off the racks over the water inlet of the generating unit.

### *Other resources*

The Group is actively engaged in water saving in the office and power usage management, while raising the employees' awareness for energy saving and environmental conservation so as to cultivate a low-carbon and low-consumption corporate culture.

### *Green office effectiveness for the Company's office building in Beijing*

	2016	2015	Change
Total paper used (tons)	<b>5.76</b>	3.84	50%
Total power consumption (kW)	<b>821,581</b>	817,677	0.48%
Video conferencing (times)	<b>132</b>	103	28.16%

*Green Office Measures*

<b>Green Trips</b>	<ul style="list-style-type: none"> <li>• Enhance management and increase utilization rate of corporate vehicles</li> <li>• Conduct monthly surveys and analyses to track fuel consumption of vehicles, and arrange necessary repairs and maintenance to reduce emission</li> <li>• Encourage employees to commute by corporate shuttle bus</li> <li>• Using video and telephone conferencing to replace certain business trips</li> </ul>
<b>Enhanced Power Management</b>	<ul style="list-style-type: none"> <li>• Clean and make energy-saving upgrades on boiler units and central air-conditioner system in the office by means of technical upgrade projects</li> <li>• Adjust central air-conditioning on real-time basis according to the temperature and adjust the lights on and off time</li> <li>• To adjust the number of elevators in power and in use according to the commute traffic of employees</li> <li>• Implement energy-saving plan from 6:00 p.m. and turn off unnecessary power supply after security checks at night</li> </ul>
<b>“Paperless” Office</b>	<ul style="list-style-type: none"> <li>• Adopt synchronized OA office system and cell-phone based patrol system to realize a paperless low-carbon office</li> <li>• Duplex printing</li> </ul>

**1.4 Environment and natural resources**

*Development of clean energy*

The Group’s attributable installed capacity for clean energy in 2016 amounted to 3,682.5MW, accounting for 22.01% of the Group’s total attributable installed capacity. The Group’s generation of clean energy such as hydropower, wind power and photovoltaic power in 2016 amounted to 18,798,569 MWh, accounting for 29.65% of the Group’s total power generation.

Substantial breakthrough was achieved in the Group’s integrated energy development projects. The Hefei Airport Project was listed as one of the first national exemplary construction projects for multi-functionality, complementarity and optimization. Development of clean energy projects are in progress as the new “Photovoltaic plus” comprehensive utilization business model was invented, with projects such as the “Agro-photovoltaic hybrid” project in Xintai, Shandong being developed successfully. Our strategic layout for wind power generation covers both offshore and onshore. Onshore wind power generation projects are undergoing optimization, as such wind power projects as Toksun Power Plant II in Xinjiang and the wind power project in Shangjiangxu, Jiangyong, Hunan were approved. Meanwhile, offshore wind power resources in places such as Shandong are being explored actively.



### *Building clean coal-fired power*

The Group continued to increase its investments in environmental protection and made further progress in the ultra-low emission upgrades in the coal-fired power generating units in its power plants in a proactive manner, installing denitration and desulphurization facilities for its coal-fired power generating units. The Group's total investments in environmental protection in 2016 amounted to approximately RMB910,560,000.

The Group practically enhanced the maintenance and operation management of its environmental protection facilities to ensure that discharge of pollutants complies with the required standards. In 2016, the operation rate of desulphurization facilities for the Group's coal-fired power generating units was 100% (2015: 100%) at the desulphurization efficiency rate of 96.67% (2015: 96.23%). Operation rate of our denitration facilities reached 99.92% (2015: 99.70%) at the denitration efficiency rate of 84.14% (2015: 80.10%). Control of discharge of airborne pollutants has been effectively improved.

## **SOCIAL RESPONSIBILITY**

The Group complies with the safe, healthy, and environment protection principle of "People-oriented, Risk Control, System Management, Green Operations", pursuing high standards of operations and striving to minimize the adverse impact on the society and the environment. It is improving its standards on clean production to provide safe, economical and clean products and services to customers and the society.

### **2 Employment and Labour Practices — A People-Oriented Approach**

Our employees are the driving force behind our sustainable development. We have always been committed to the provision of a sound workplace for employees and the protection of employees' lawful rights. Health and safety of the employees are our concern and a wide-ranging platform has been in place for career development of the staff so as to create a corporate culture of loyalty and cohesiveness, promoting the mutual growth of the staff and the corporation.

#### **2.1 Employment**

In compliance with the requirements for protecting labours' rights and responsibilities as set out in the "Labour Law of the People's Republic of China", the Group establishes a social security system to make contribution for the required five types of insurance and one pension fund to the employees. A sound corporate pension fund and a supplementary medical insurance system in addition to the basic medical insurance plan were in place. Meanwhile, a solid leave-taking system was established in the Group for the employees to safeguard employees' rights effectively.

In 2016, the Group had a total of 9,723 registered employees, comprising 2,379 female employees which accounted for 24.47% of total employees. All employees are covered by labour contracts and social insurance, and there has been no infringement upon staff rights. The Group's staff turnover for 2016 was 6.07% or 590 employees.

## Environmental Protection and Social Responsibility Report 2016

### Staff headcount for 2016 by gender

Gender	Total number (person)	Percentage (%)	Number of resigned employees (person)	Turnover (%)
Female	2,379	24.47	334	14.04
Male	7,344	75.53	256	3.49

### Staff headcount for 2016 by employment type

Employment type	Total number (person)	Percentage (%)	Number of resigned employees (person)	Turnover (%)
Senior management	16	0.16	0	0
Middle management	269	2.77	8	2.97
General staff	9,438	97.07	582	6.17

### Staff headcount for 2016 by age group

Age group	Total number (person)	Percentage (%)	Number of resigned employees (person)	Turnover (%)
29 or under	1,655	17.02	15	0.91
30–39	2,150	22.11	187	8.70
40–49	3,920	40.32	329	8.39
50 or above	1,998	20.55	59	2.95

### Staff headcount for 2016 by region

Region	Total number (person)	Percentage (%)	Number of resigned employees (person)	Turnover (%)
North China	2,794	28.74	141	5.05
East China	2,962	30.46	68	2.30
Central China	3,166	32.56	325	10.27
Southwestern China	672	6.91	35	5.21
Northwestern China	129	1.33	21	16.28

**2.2 Health and safety**

The Group’s employees are equipped with labour tools and labour protection gear that are compliant with safety standards, while regular staff health checks are organized, as the Group continues to improve its conditions for operations in strict compliance with the “Laws of The People’s Republic of China on the Prevention of Occupational Diseases” and other laws and regulations relating to safety and hygiene. In 2016, there was no work-related death or working days lost due to work-related injury for the Group.

Raising employees’ awareness of work safety helps mitigate the risks of injury and protect the life and property of the employees effectively. Providing proper production safety training for staff remains the Group’s first priority. In 2016, trainings for full-time safety administrators and production team leaders in respect of prevention of human errors were organized with 380 participants recorded. Safety examination was regularly held for administrators and the production staff to reinforce their understanding and knowledge of the laws and regulations, procedures and systems as well as the protocols for production safety, clarify their right and responsibility in respect with production safety, provide essential safety knowledge and protect their respective rights and responsibilities for safety.

**2.3 Development and training**

The Group optimizes its staff allocation to maximize complementary effects in terms of age, know-how and expertise. We see the pooling of talents as a priority task, with special emphasis on training up high-calibre young employees to provide a solid foundation for the long-term development of the Group. Technical experts are groomed to provide manpower and technical support for the Group’s development.

In 2016, new employees are provided with induction training to enhance their understanding of their job duties.

The Group places emphasis on the participation and organization of various types of competitions, using skill races as a platform for team building and to encourage learning so as to cultivate skilled talents. Meanwhile, the Group also focuses on cultivating the comprehensive skills of employees. In 2016, an English language competition was held to improve the employees’ ability and standard of English by means of English courses, English video production and fun games.

*Training for 2016 by employment type*

Employment type	Number of training	Per capita training hours	Training coverage (%)
Senior management	15	22	57
Middle management	71	75	82
General staff	1,018	75	85.3

## 2.4 Labour practices

The Group has strictly complied with the national Labour Law, Labour Contract Law and other pertinent laws and regulations. We enter into labour contracts with employees and pay for their social insurance. We ensure no sexual or racial discrimination and equal salaries for male and female employees, while the practices of child labour and forced labour are strictly prohibited. The Group has established a democratic system for corporate administration based on the staff representative assembly and workers' union to offer genuine protection for employees' rights of participation, expression and supervision. Employees may report incidents of violation to the Group at any time if they note any violations in the process of recruitment or operations, such as child labour and forced labour.

The Group also took the initiative to conduct its recruitment fairs in key colleges such as North China Electric Power University, Huazhong University of Science and Technology and Hunan University in strict compliance with campus recruitment procedures, and made full use of the recruitment platform from SPIC to collect information on job candidates. Professional examination institutes were engaged to draft questions and make objective, fair evaluations, ensuring a fair, just and open recruitment.

During the year under review, all business units in which the Group has operational control, complied with the local labour laws. No fines or charges were imposed due to violation of laws.

## 2.5 Care for staff

The Group organizes a diverse range of cultural and recreational activities that provide broad opportunities for employees to nurture interests and hobbies as well as to learn new skills. In 2016, the Group held activities related to the culture of Lunar New Year and talent shows, among others.

The Group continues to operate the "Golden Autumn Schooling Assistance (金秋助學)" programme as part of its ongoing effort to improve its mechanism for staff aid, helping out children of employees in financial difficulties and extending our care to the families of our employees. In 2016, the Group carried out 200 caring activities targeting specific groups such as employees in need, retired employees and disabled employees, and granted RMB370,000 in financial relief for serious illness to 38 employees, while offering "Golden Autumn Schooling Assistance" bursaries amounting to RMB98,000 to the children of 22 underprivileged employees to continue their studies.

## 3 Operational Practices — Safeguarding A Stable Development

The Group works diligently to provide safe and reliable power support for economic and social development and persists in value-sharing with the industry chain, seeking to drive economic development at the places where it operates and share with the community the benefits of development. The Group incorporates the philosophy of social responsibility in its management and operations, taking into account the features of the power industry and its own characteristics, and makes contributions to the sustainable development of the society and the environment, in a bid to constantly enhance its competitiveness in respect of social responsibility.

**3.1 Supply chain management**

The Group persists in developing fair and impartial working relationships with suppliers. Bulk purchases of fuel and other materials are subject to an administrative regime that separates the three functions of (i) purchase, (ii) delivery inspection and acceptance, and (iii) supervision, in a bid to eliminate corruption at source. Contracts and agreements are performed in stringent compliance with contractual requirements and all suppliers are treated with respect and equality.

While fulfilling its own social responsibility, the Group also incorporates concepts and requirements of social responsibility in the management of suppliers. A stringent and standardized system for the selection and management of suppliers has been formulated, in a bid to safeguard a healthy and orderly marketplace in a joint effort with other parties in accordance with the "Regulations for the Management of Suppliers", "Implementation Measures for the Evaluation of Material Suppliers", "Implementation Measures for the Evaluation of Tender Suppliers" and other pertinent regulations.

Approval of fuel suppliers is subject to the fulfilment of precedent conditions based on the mine resources or transport support provided by the potential suppliers, which are assessed and examined in a comprehensive manner with reference to their qualification, skill competence, product quality, pricing, after-sale service and reputation, and are graded as I, II and III in accordance with the "Catalogue for Grading and Classification of Materials". China Power focuses on examining suppliers of Grade I and II and those which are newly added or planned to be eliminated. In 2016, the Group assessed 1,664 suppliers of fuels and other materials, and identified 40 unsatisfactory suppliers, 10 of which were blacklisted.

Fuel and equipment suppliers of the Group in 2016 analyzed by region:

Region	Number of suppliers
North China	197
East China	444
South China	76
Central China	559
Northwestern China	65
Southwestern China	212
Northeastern China	111

As a power generator, the Group mainly sells electricity generated from its power plants through the local power grid companies. In 2016, seizing the opportunity directed by the PRC government in opening up the electricity market, the Group has been actively fostering its own customer base by proactively liaising with enterprises of large electricity consumption and building with them long lasting and sustainable partnerships in order to secure the increased market share in the direct power supply.

### 3.2 Safe and reliable power supply

The Group is dedicated to the building of a stable and reliable power generation system to safeguard safer, cleaner, more economical and more sustainable electric power supply.

#### *Safe production*

The Group regards safe production as the prerequisite for stable power supply and sustainable development for the Group in firm adherence to the safety philosophy which maintains that “no risks are uncontrollable, no breaches are unpreventable and no accidents are unavoidable” and the safety production directives of “safety as priority, prevention rather than cure, and comprehensive management”. No major safety incident related to our employees, facilities or the environment occurred in 2016.

#### Improving our safety management regime

- Improving the system: driving the development of the safety, health and environment (SHE) management system on all fronts, amending 33 management systems such as “Reward and Punishment System for Safe Production”, regularizing the process for the development of the SHE management regime through enhancing protocol building.
- Enhancing standardization: driving the development of the SHE management system and instructing and coordinating all units on all fronts to achieve compliance with standardization, all of coal-fired power plants of the Group have obtained the license for compliance with standardization.

#### Enhancing safety awareness

- Experts were invited by the Group to engage employees in training sessions on the laws and regulations in connection to safe production in order to enhance safety awareness, and use the SABA system to organize administrators and production staff to join safety exams on a regular basis.
- The conduct of safety culture campaigns: safety culture promotion has been enhanced via multimedia, TV and billboards, while a range of safety culture campaigns such as the Safe Production Promotion Day, Safety Culture Week, Safe Production Month and Safe Production Speech have been organized.

#### Ensuring reliable operation of production facilities

- Improving facility management: series of facility management regulations, such as “Regulations for the Management of Special Equipment”, “Regulations for the Management of Repair and Maintenance Preparations for Class A Generating Units” and “Regulations for the Management of Repair and Maintenance”, have been formulated.
- Enhancing facility repair and maintenance: repair and maintenance of Class A/B/C generating units has been conducted and hazard investigation and removal have been reinforced to enhance reliability of the production facilities.

Ensuring safety of the production environment

- Enhancing emergency response management: 450 special emergency plans have been formulated, and 578 emergency drills have been organized, with a turnout of 10,118 participants.
- Enhanced safety inspection: Spring/Autumn safety inspection has been organized with special emphasis on hazard investigation and removal as well as rectification of irregularities, in particular the rectification closed-loop work for substantial hazards.

### *Reliable supply*

The Group implements a stringent management regime and strictly executes requirements for safe production. Emergency response capabilities were continuously enhanced with a view to provide stable and reliable power supply. The Group recorded its combined power generation of 63,403,445MWh in 2016, providing a stable energy assurance for regional economic development.

To ensure stable power supply, the Group has formulated specific regulations for production operations and set out plans for overhauls and technological upgrades, as well as adopting specific investigation to eliminate any hazards in the power generating units and increase the utilization ratio of power generating units. In 2016, the Group conducted a total of 64 overhauls on Class A/B/C generating units to secure a stable operation of the generating units and successfully dealt with the challenges in the drought periods and the peak power consumption periods during the summer/winter seasons.

During the year under review, all operating power plants in which the Group has operational control, complied with the relevant production safety regulations of China. No fines or charges were imposed due to violation of regulations.

### **3.3 Technological innovation**

The Group accords tremendous importance to the building and optimizing of the technological innovation system. Driven by the establishment of the Hua Chuang Technological Centre, technical R&D project mechanisms were improved on an ongoing basis and talent pooling is reinforced to enhance our technological innovation capacity. In 2016, China Power Hua Chuang Electric Power Technology Research Company Limited was officially recognized as a new high-tech enterprise in China.

The Group greatly emphasizes the cooperation between the industry and the academia in research, actively integrating social resources available for technology to create technological innovation. The Group engaged in technological projects jointly with various research institutes such as the Chinese Academy of Sciences, Southeast University and Sichuan University.

In 2016, the Group carried out 54 technology projects in total and 21 patents were approved, out of which the Group was granted 20 utility models patents, one innovation patent, registered three software copyrights, and chaired or participated in the formulation of eight industry standards. All business units of the Group have proactively carried out the "Innovative Workshop" and mass-oriented technological events to create an atmosphere conducive to technological innovation, which incentivized our staff to engage in technological breakthroughs.

### 3.4 Anti-corruption

The Group has established the “Regulation of Collective Decision Making for Significant Business Issues”, “Administrative Regulations for Petitions and Whistle-blowing” and “Regulations for Integrity Talks” and made improvements to such regulations. The concepts of “dual responsibilities” and “two-way investigation” are stringently implemented. Where significant disciplinary and legal violations occur at a department or unit, both the culprit and the relevant supervisor should be held responsible. Supervision and checks over the exercise of power have been strengthened and all supervisory regulations have been stringently executed.

Disciplinary and legal violations were handled based on the circumstances established by incoming reports given by mail or in person or the concerns raised and clues given by complaints of the employees. Where the issues and clues reported are too vague for further investigation, written inquiry is conducted to allow the person named in the complaint to make actual pledges and explain the actual situation for further filing. If the reported issues are detailed and concrete enough for investigation but are subsequently found falsified, the person named in the complaint will be engaged in an anti-corruption talk as a reminder to prevent the occurrence of disciplinary or legal violations. If the case is proven true, follow-up measures, such as cautionary lectures, report of criticism, re-designation, termination of labour contract and so on, may be given according to the severity of the situation. For serious disciplinary violations which are suspected a breach of laws and regulations, such cases would be referred to government prosecution authority.

The Group emphasizes the guidance of promotion and education and combines promotional campaigns with daily anti-corruption education. A range of activities, such as special seminars, counseling talks, admonitory videos, personal counseling and anti-corruption tests, were held to fortify the concept of legal and disciplinary compliance among employees, in order to improve self-alert and self-correcting abilities. In 2016, the Group organized training in anti-corruption and integrity education, which registered a total of 2,196 participants. No corruption litigation occurred throughout the year.

## 4 Community Investment – Promoting Harmony

The Group is actively involved in community building and conducts its business in a responsible manner in the places where it operates, with the aim of driving local economic and social development. Social charity and other campaigns that contribute to the well-being of local communities are organized based on their practical needs.

### 4.1 Promoting local economic development

While making substantial contributions to local finances through its tax payments, the Group also helps to drive the rapid development of the environmental protection, construction materials and servicing sectors and the formation of a cluster of power plant-related industries. In 2016, the Group paid RMB3,269,308,460.65 in various taxes and created 848 new job opportunities in the places where it operated. Dabieshan Power Plant was the taxpayer rated as “Grade A in Tax Credit Rating in 2015” by the Huanggang Municipal Office, State Administration of Taxation.



### 4.2 Support for education, cultural activities and charity

The Group is committed to promoting cultural and educational developments in the places where it operates. We encourage and support staff participation in volunteer services to foster a sound learning environment for local youngsters. In 2016, Dabieshan Power Plant carried out an educational assistance activity titled “Jieduizi (結對子)”. Five underprivileged middle school students with excellent academic performance were identified as the targets for assistance in visits to four nearby communities, and an educational assistance fund was established for the underprivileged students, raising over RMB30,000 from employees’ donations which brought hope to these youngsters in need.

In 2016, Wu Ling Power made relief effort to Yuping Village in Wugang City, Hunan for second consecutive years with a confirmed contribution of RMB6,924,900. By building infrastructure, developing specialty industry and supporting development in education, 61 households were lifted from poverty with a total of 207 people for the year, achieving the target of poverty relief for Yuping Village one year in advance.

The volunteers of the Group engaged with the community, paid visits to the families in need and carried out voluntary activities for the underprivileged communities in need. Currently, 3,331 volunteers were registered under our volunteer programme “Ying Shan Hong” (映山紅). In 2016, 152 voluntary activities were carried out by 5,802 participants with accumulated 11,604 service hours, donating a total sum of RMB208,113.

### 4.3 Environmental conservation

The Group encourages staff to take an active part in environmental protection activities and to advocate the green philosophy of environmental protection, in a bid to highlight the importance of protecting the ecological system and bio-diversity among our staff and other members of the society. In 2016, Wu Ling Power established a fish breeding station which breeds fish and releases them to the wild as a means to alleviate the impact of its operation on the fauna.

In 2016, due to the tidal cycle, a great amount of floating debris accumulated at the water inlets and trash-screening fences of the generating units of Wu Qiang Xi Power Plant, affecting the operation of the generating units and causing harm to the local environment. The power plant conducted timely clean-up for the floating debris blocking the water inlets and the screen fences, transporting the debris away and neutralizing the impact for harmless treatment, thereby making contribution to the preservation of the ecological environment.

Capitalised terms used in this report shall have the same meanings as those terms defined in the section headed “Technical Glossary and Definitions” of the 2016 Annual Report of the Group unless the context requires otherwise.



China Power International Development Limited  
中國電力國際發展有限公司

**Hong Kong Office:**

Suite 6301, 63/F, Central Plaza,  
18 Harbour Road,  
Wanchai, Hong Kong  
Tel: (852) 2802 3861  
Fax: (852) 2802 3922

**Beijing Office:**

East Building, Hui Huang Shi Dai Plaza,  
56 North West Fourth Ring Road, Haidian District,  
Beijing, China  
Tel: (86-10) 6260 1888  
Fax: (86-10) 6260 1777