哈电集团
HARBIN ELECTRIC CORPORATION

哈尔滨电气股份有限公司
HARBIN ELECTRIC COMPANY LIMITED

Stock Code: 1133

Environmental and Social Responsibility Report For the Year 2015

INTRODUCTION

This is the environmental and social responsibility report of Harbin Electric Company Limited (the "Company") for the year ended 31 December 2015, which covers the Company and its subsidiaries (the "Group").

The Group's principal activities include manufacturing and sales of thermal power equipments, hydro power equipments, nuclear power equipments, gas turbine power equipments, other new energy power equipments, electromotors, valves for power stations and environmental equipment etc. It also provides turnkey construction of power station projects and complete set of equipment.

In 2015, the Group has actively achieved its social responsibility of "Friendly environment, Warm Home" to highlight scientific development as the main principle and continuously enhanced its economic efficiency. Under its overall framework of performing social responsibilities and pursuing customer satisfaction, the Group will strive to attain subsisting healthy development through implementing stringent management measures, innovative reforms and full compliance with laws, while endeavouring to take all related parties' interests into consideration and encouraging a harmony of human and nature.

This report is divided into 5 sections: Value of Operation, Working Environment, Environmental Protection, Technological Contribution and Social Participation.

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(1) VALUE OF OPERATION

1. Operating Results

In 2015, the Group faced the challenging market environment head-on with its hardworking spirit and pragmatic attitude, and realized total operating revenue of RMB25.412 billion, an increase of 4.76% over the previous year; net profit attributable to the parent company amounted to RMB196 million, a decrease of 65.36% over the previous year; and bank deposits and cash of RMB18.237 billion, an increase of 24.83% over the previous year.

For the purpose of market development, the Group strived to exploit the market and realized RMB33.102 billion

3. Product Responsibilities

With the rising demand for energy across the globe and the growing awareness of environmental protection, the promotion of clean energy has become a necessary trend, which has imposed new pressures and challenges on conventional power generating equipment manufacturing industry. In order to meet the target of reducing by the year 2020 the emission of carbon dioxide by 40%-45% as compared to 2005, developing power generating equipment running on high performance and clean energy has become a necessary trend for national power generating equipment. Among all the thermal power generating equipment in China, the coal-fired power generating equipment running on high performance and clean energy will be the mainstay in future while hydropower, nuclear power, hybrid power and wind power as well as solar power will enter a new development phase. The Group will adhere to the concept of sustainability and continue to step up its efforts in developing power generating equipment running on high performance and clean energy as well as new energy, synchronizing the growth of the enterprise and the environment.

The Group's customers are mainly power-generating enterprises. In general, after completing installation and successfully passing 168-hour pilot operation at power plants, the products of the Group commenced commercial operation, during which the Group generally offers a one-year quality guarantee period to its customers.

The Group provides the products that meet the needs to users, and at the same time endeavours to provide them with timely and efficient services as well as solve their issues. To obtain first-hand information on the users' feedback, led by three senior management members, the Group paid its customers frequent visits in 2015. More than 700 feedbacks gathered from users were sorted out and analyzed in a comprehensive aspect to identify common issues. In this regard, the Group established measures for improvement to prevent recurrence of problems with an objective to ensuring that reply and solution were given against every single issue from users.

4. Anti-corruption

The Group has been actively working on the establishment of punitive and preventive measures against corruption. It set up a long-term effective system by firstly establishing discipline inspection and supervisory team, building system and developing work force. It upheld the problem-oriented principle, established discipline inspection and management team and facilitated the reform of discipline inspection mechanism. Discipline inspection and supervisory organizations were established with full coverage through specialization of secretary of the disciplinary committee of substantial subsidiaries and accreditation of discipline inspection group to smaller units by the disciplinary committee of the Company. The Group has convened conferences on anti-corruption and promoting moral cleanliness, warning education sessions, meetings of secretary of the disciplinary committee, conducted specific interviews and rectification, and enhanced its accountability and whistleblowing policy, aiming at promoting the concept of moral cleanliness and clean corporate culture among the leadership and key personnel while reinforcing restriction and supervision on power operation, so that corruption can be avoided at its very source for warning, educational and deterrent purposes.

The Group always attaches importance to the establishment of a system advocating anti-corruption and promoting moral cleanliness. On the foundation of 16 issued directives, such as "Integrity Risk Prevention and Control Manual" (《廉潔風險防控手冊》), "Code of Ethics for Top Leadership of Enterprise" (《企業領導人員廉潔從業實施辦法》), "Implementation Measures for the Decision Making Policy Regarding '三重一大 (Important issues, Important Personnel, Important Investments and Substantial Investment Amount)'" (《貫徹落實「三重一大」決策制度實施辦法》), "Implementation Measures for 'Requirements of Incorruptible Employment for State-owned Enterprises Leaderships'" (《貫徹落實「國有企業領導人員廉潔從業若干規定」實施辦法》), 3 directives including "Implementation Rules Regarding Carrying Out Reminders, Inquiries by Letter and Admonishing for Leaders" (《關於對領導人員進行提醒、函詢和誡勉的實施細則》), "Measures for the Implementation of Inspection Work (Amendment)" (《巡視工作實施辦法(修訂)》), "Measures for the Management of Monitoring Work" (《監察工作管理辦法》) were reformulated and improved to further regularize operational management.

The Group has brought the construction of a clear and honest Party and anti-corruption into the general layout of enterprise reformation and development. It has been actively participating in interaction and collaboration among discipline inspection and supervisory, judiciary, administration and law enforcement and state-owned system, which enabled the major responsibilities in constructing and supervising a clear and honest Party to be fulfilled efficiently, and the establishment of supervisory team under various functions such as discipline inspection, supervision and audit to be further optimized. The goal is to establish a supervision mechanism in which the disciplinary committee plays a leading role with concerted efforts from the compliance department, audit department, the board of supervisors, risk control department and other departments of relevant functions, further perfecting the corporate supervision system by ensuring an organic integration of anti-corruption and business management.

(2) WORKING ENVIRONMENT

1. Working Environment

The Group adheres to its "people-oriented" principle of development, which emphasizes staff management, and has established various systems, including the "Staff Management System", "Labour Contract Management Measures", "Requirements on Labour Contract Termination" and "Implementation Measures for Paid Leave". It endeavours to create better working environment for its staff, and at the same time reduces exposure to labour employment risks, as well as efficiently eliminates the use of child and forced labour.

The Group is implementing the five-day week and eight-hour day working arrangement. Its staff members enjoy all holidays set by the State and local governments and are entitled to paid leaves ranging from 5 to 15 days depending on their years of service. Staff of the Group is entitled to "5 Insurances and 2 Pensions" and other benefits. The Group has also established the supplementary pension system to provide better assurance to our staff.

The Group is implementing a master budget management regarding staff remuneration, which constitutes a performance-based reward system that can effectively motivate the staff to make positive contribution to the Group. The Group has established various systems whereby the remuneration of the management is linked to the Group's performance, forming a floating mechanism for the remuneration of the management.

The Group places high importance on the career development of its staff and therefore has set up various systems including "Staff Training Management System" to ensure staff's career development and, at the same time, the Group's corporate development. Staffs can seek development in two ways: getting promotion to management positions or getting transfer to technical positions through enrichment of professional knowledge. It has also set up relevant systems, such as "Interim Requirement for Recruitment, Assessment and Management of Chief Professionals and Supervisors", "Interim Measures for Assessment and Management of Technical Experts (Chief Technical Experts)" and "Interim Measures for Assessment and Management of High-tech Experts", to encourage talented staff to "opt for professional qualifications instead of official duties".

In 2015, the Group had a total workforce of 18,691 employees. The formation of our staffs was as follow:

Table 2 — Staffs of the Group (By duties and education background)

By duties	Number of staffs	By education background	Number of staffs
Corporate management	4,064	Doctorate degree	42
Professional technicians	4,431	Master degree	1,317
Front-line production workers	6,565	Bachelor degree	5,545
Supporting production workers	3,631	Professional qualification	3,972

Chart 2 — Staffs of the Group (By duties)

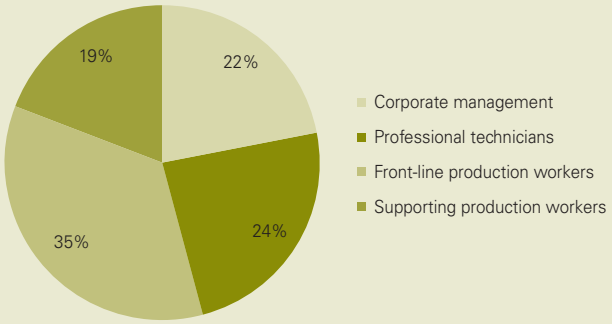
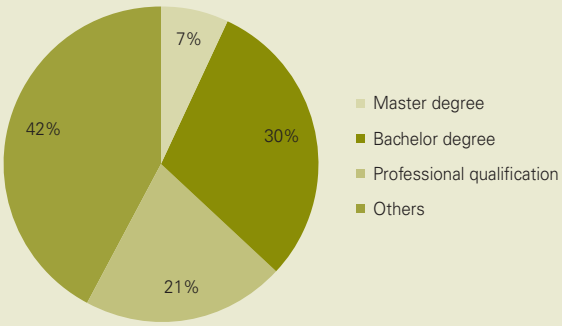


Chart 3 — Staffs of the Group (By education background)



In 2015, 161 staff members left the Group. Most of them were newly-recruited university graduates, who opted for government posts or postgraduates studies.

Table 3 — Staffs of the Group (By gender and age)

	By gender		By age		
	Male	Female	Under 30	Aged 30–45	Aged 45–60
Number of staffs	14,668	4,023	3,438	10,897	4,356
Staff turnover	137	24	85	68	8

Chart 4 — Formation of staffs of the Group

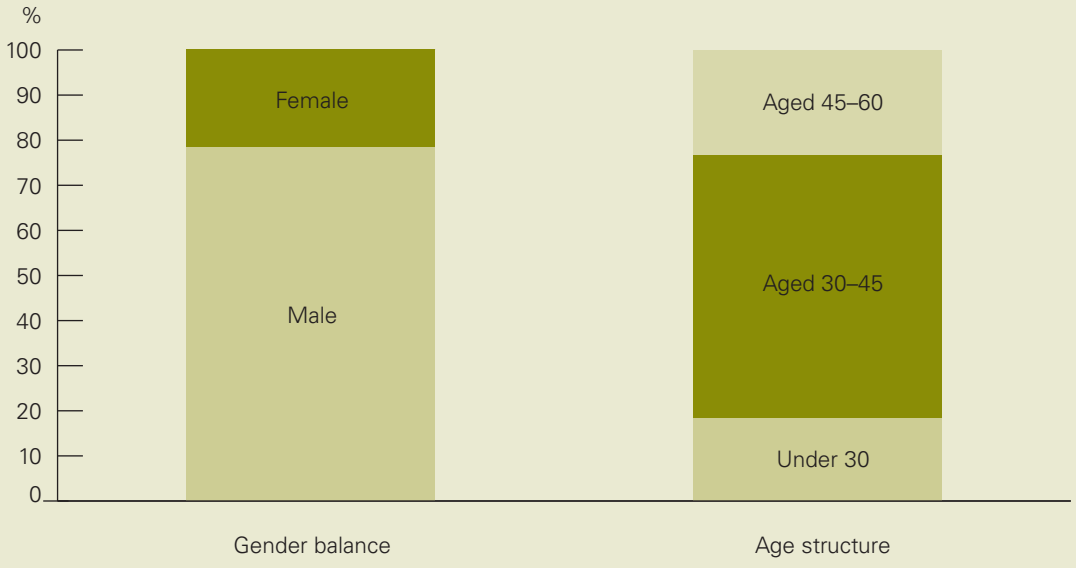
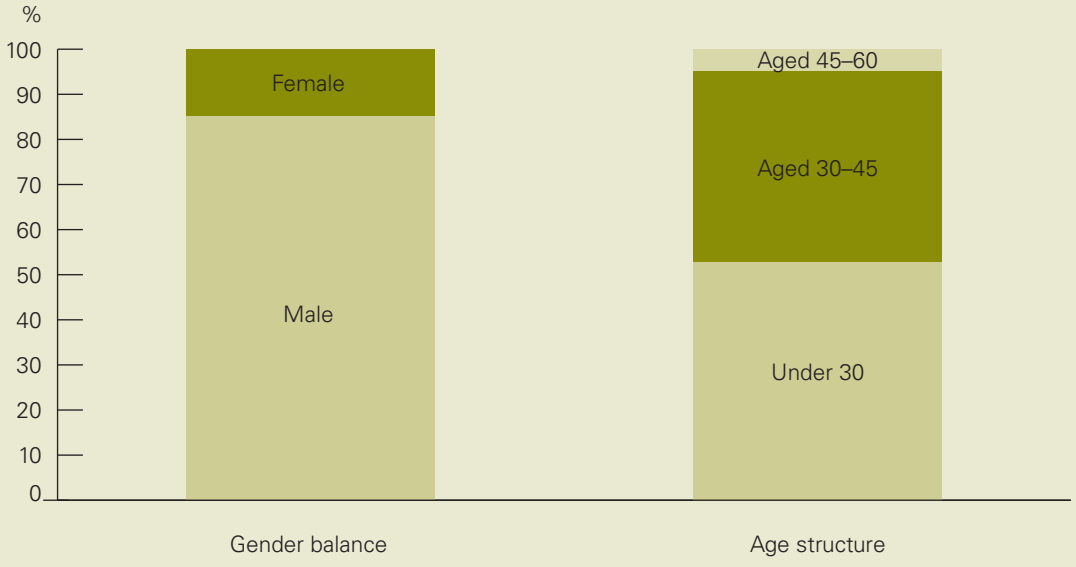


Chart 5 — Staff turnover of the Group



3. Staff Development

In 2015, the Group fostered its transformation and work in a pragmatic way, endeavours to open up a new landscape of human resources development and management. It has also fully implemented the "45411" talent strategy, procured the establishment of "4 Changes", i.e. standardization, professionalism, market and globalization of the talent team. The basic work of human resources management was further strengthened and the human resources reform was carried out into a deeper level. More effort was put on the monitoring of the allocation of remunerations and distribution of labour so as to further enhance the training of human resources. Approval of external affairs and management was carried out smoothly in line with our globalization strategy. New initiatives adopted for our main tasks were as follows:

(1) Amended several times and issued documents relating to the systems including "Measures for the Management of External Affairs" (《外事工作管理辦法》) and "Measures for the Incentive and Punishment of Staff" (《員工獎懲辦法》), strengthening the foundation for staff management of the Group.

(2) In order to further meet the need for strategic development of the Group, the Group implemented new measures for talent introduction, and established and issued "Provisional Measures for the introduction of '50 talents'" (《「50優才」引進暫行辦法》). By fully leveraging the national, provincial and municipal policy of talent introduction, and based on the key scientific researches and major projects undertaken on both the national and provincial levels, the Group is able to attract around 10 outstanding graduates from top engineering universities in China every year, depending primarily on the need of the Group and its subsidiaries. With the persistent efforts during the "13th Five-Year Plan" period, the Group aims to introduce around 50 quality talents by the end of the "13th Five-Year Plan" period (the "'50 Talents' plan").

(3) Implemented the talent strategy to further enhance the training of talents. In 2015, the Group launched the assessment for the third group of technical experts, and selected and appointed one chief technical expert and 10 group-level technical experts, providing a foundation for building up a high technology talent team of sufficient quantity with strong technical skills and fine work style. Meanwhile, the Group focused on the introduction of medium to high-end talents. Progress was made in the "1000 Talent Plan". Currently there are 4 talents developed by the Group's "1000 Talent Plan".

(4) Further strengthened the management of outsourcing labour. According to the requirements of relevant laws and regulations, the Group has enhanced the management of outsourcing labour and regulated the behavior of outsourcing labour in the following manner: controlling the proportion and source of outsourcing labour; regulating of the positions of outsourcing labour; and adoption of standardized management of transfer, business outsourcing and dismissal for the existing substandard outsourcing labour, which has effectively avoided employment risks.

(5) Deepened three systematic reforms. In 2015, based on the "fixed position, fixed schedule, fixed staff" scheme, with reference of the advanced enterprises in the same industry in the PRC and taking into consideration of the performance assessment of all staff, the Group has adopted the dynamic management based on the requirements of positions and the annual performance appraisal results progressively in compliance with the laws and regulations.

(iii) The enhancement of safe production and protection of occupational health. The Group had a well-established system which strictly executes the national regulations and standards. We also educate our staff to ensure the effective implementation of quality and safety standardization and the occupational health and safety management system. The Group protects and cares for the health of our female staffs. We have medical insurance cover for female staff every year to have body check-ups. We also improved the staff's working and living environment and such that the casualty loss of accidents has come down annually. Currently, the Group has 6 enterprises verified as the "Enterprises with First Class of Standardization of Safety and Quality".

(4) Employee Care

The Group actively held activities to send its warmth of love to its staff, and set up a total of 1,200 files relating to staff with difficulties as of 31 December 2015. The Group provided 2,444 times, 68 times and 18 times of living aids, medical aids and legal aids, respectively for those staff with difficulties. The Group also provided 215 matching-up supports and 30 times of psychological counseling for the staff and commenced the "Sunshine Study Support" and the "Golden Fall Study Support" activities to provide 158 times of student aids for the children of staff with difficulties.

Currently, the Group has 9 special fund projects, including the staff supporting fund and the mutual supporting fund.

(3) ENVIRONMENTAL PROTECTION

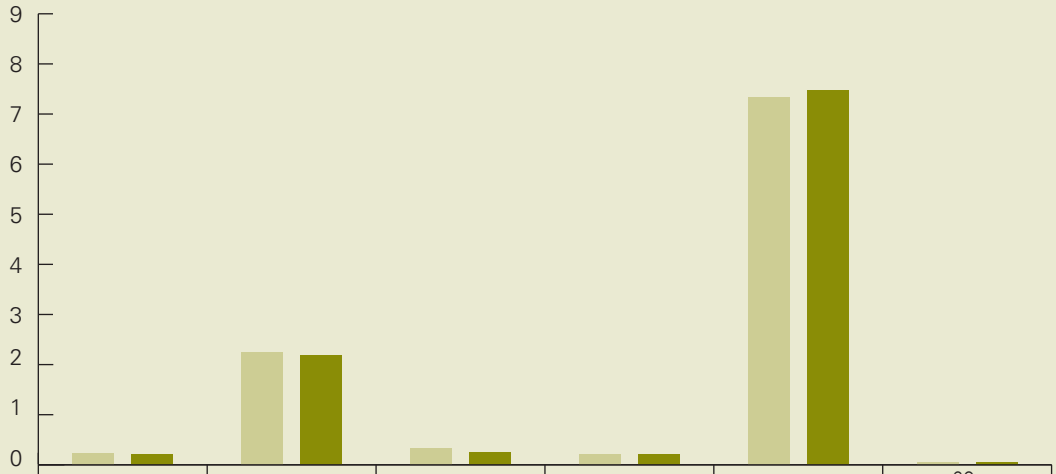
1. Emissions

The Group always concerns itself with environmental protection and works on energy saving and emission reduction. We actively assume social responsibility to reduce water, air and noise pollution.

In 2015, the Group continued to proceed to the implementation of its sound management of energy saving and emission reduction, and strengthen its own energy saving during the course of production and operation in an effort to reduce the energy consumption of the Group's production and operation. In particular, the Group (1) continued to capture the implementation of construction projects of energy saving and emission reduction and organize the "Investment Plan for the construction projects of energy saving and emission reduction in 2015" for its subsidiaries, and follow up the progress of the construction projects regularly in order to ensure the capital investment. We have effectively reduced the energy consumption and pollutant emissions through project implementation; (2) earnestly implemented the energy efficiency improvement plan for motors through the promotion of using motors with high efficiency and vigorously commenced the replacement of obsolete motors, so as to gradually carry out the upgrading proposals for energy saving of motor system. As of the end of 2015, over 470 motors with lower efficiency of a total capacity of 5.4MW were eliminated; (3) strengthened the establishment of management system. Our head office and subsidiaries passed the inspection of environmental management system, which further enhanced the scientific and standardized management and thus the management level was effectively promoted; (4) by capitalizing on the opportunity from "Energy Saving Promotion Week" and the "Low-Carbon Day", carried out various promotional and training activities in respect of energy saving, which further increased the staff's awareness of environmental protection; (5) put more effort on energy management assessment through clearly setting up the distinct assessment indicators for different levels and monitoring the satisfaction level of such indicators. The subsidiaries with a year-on-year increased level of unit energy consumption and pollutant emissions in 2015 were punished by deducting merit points for their annual operating performance assessment; (6) further carried out clean production activities and enhanced its equipment's energy efficiency; (7) strictly complied with the wastewater discharge standards by adopting the water circulating technology to save water resources and reduce pollutant emissions for any production process involving vast amount of water; and (8) effectively carried out energy saving construction projects by applying the contracted energy management model to reduce its capital investment.

In 2015, the Group's prevailing environmental equipment operated stably, with a performance rating of over 95%. Each of the annual emission of SO_2 (20 tonnes), COD (Chemical Oxygen Demand) (218 tonnes), nitrogen oxides (25 tonnes), ammonia nitrogen (21 tonnes), CO_2 (74,775 tonnes) and CO_2 per ten thousand yuan output value (0.04 tonnes) complied with the respective national standards. The Group's emission of SO_2 and COD fell 8.8% and 2.8% respectively as compared to 2014, achieving the energy saving and emission reduction target supported by the 12th Five-Year Plan.

Chart 6 — Pollutant Emissions of the Group



	SO_2 (hundred tonnes)	COD (hundred tonnes)	nitrogen oxides (hundred tonnes)	ammonia nitrogen (hundred tonnes)	CO_2 (hundred tonnes)	CO_2 per ten thousand yuan output value (tonnes)
2014	0.22	2.24	0.32	0.21	7.339	0.04
2015	0.20	2.18	0.25	0.21	7.478	0.04

The Group has rigorously complied with environmental protection regulations regarding the declaration, transfer and disposal as well as contingency plan of hazardous wastes. It has standardized and enhanced the environmental management of hazardous wastes by engaging operators holding valid license for processing hazardous wastes and electronic wastes. In 2015, the aggregate amount of hazardous wastes produced by the Group was 2,056 tonnes with a 100% disposal rate.

The Group has always been paying close attention to the environmental protection issues. As the Group continued to put more effort on energy saving and emission reduction and strived for better protection of our environment, no environmental incidents occurred in 2015.

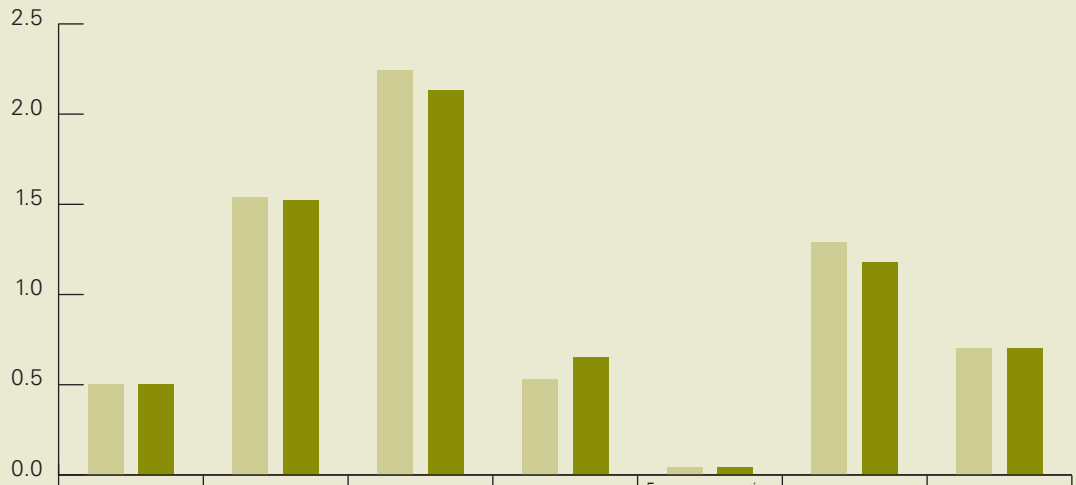
2. Usage of Resources

The Group has established "Energy Management System", "Rewards and Punishment Assessing Measures for Single Major Energy-consuming Equipment", "System for Measurement Management" and "Energy Management System for Outer-ring Users", and strictly implemented the abovementioned measures during our production process.

The major raw materials required by the Group are steels and non-ferrous metals. By continuously improving our designs and techniques to promote utilization rate of materials, the Group's utilization rate of major raw materials was 80% in 2015.

As regards energy consumption, throughout 2015, the Group has consumed 5 thousand tonnes of raw coal, 151.58 million kW/hour of electricity, 21.33 million m^3 of natural gas and 648 tonnes of petroleum. Thus, the aggregate amount of energy consumption was 72,792 tonnes of standard coal and the aggregate consumption per ten thousand yuan output value was 0.04 tonnes of standard coal. The amount of new water for industrial use was 1,175,982 tonnes and the water consumed per ten thousand yuan output value was 0.7 m^3 with a year-on-year decrease of 4%.

Chart 7 — Energy Consumption of the Group



	Raw coal (ten thousand tonnes)	Electricity (hundred million kW/hours)	Natural gas (ten million m^3)	Petroleum (thousand tonnes)	Energy consumption per ten thousand yuan output value (tonnes of standard coal)	New water for industrial use (million tonnes)	Water consumed per ten thousand yuan output value (m^3)
2014	0.5	1.54	2.24	0.53	0.04	1.29	0.7
2015	0.5	1.52	2.13	0.65	0.04	1.18	0.7

The Group constantly carried out the promotion and education activities for energy saving and emission reduction. The subsidiaries of the Group launched a promotion campaign on energy saving, with the theme of "leading by energy saving and growing in green" and "green development with low carbon innovation", aiming to enhance all staff members' awareness of energy saving, emission reduction and low carbon, so as to strive for further reduction of the aggregate energy consumption and water consumed per ten thousand yuan output value.

3. Energy saving and emission reduction products

(1) Satisfaction level of major indicators

In accordance with the regulations and requirements of the Notice of the State Council on Issuing the Energy Conservation and Emission Reduction Plan for the "Twelfth Five-Year Plan" Period (Guo Fa [2012] No. 40) and the Interim Measures for the Supervision and Administration of Energy Conservation and Emission Reduction of Central State-owned Enterprises (Decree of SASAC No. 23), the Group has comprehensively commenced its work for energy saving and emission reduction, aiming at reducing the energy consumption while increasing the energy utilization rate and continuing its energy management enhancement. The Group has strictly implemented the energy saving and emission production target supported by the 12th Five-Year Plan in accordance with the requirement of the state. As at 31 December 2015, the aggregate energy consumption per ten thousand yuan added-value and the total amount of energy consumption reduced by 16% as compared to 2010, and the emission of both chemical oxygen demand and sulfur dioxide reduced by 8% as compare to 2010, and the emission of both nitrogen oxides and ammonia nitrogen reduced by 10% as compared to 2010.

(2) Development of energy saving and environmental friendly products

The Group has proactively developed highly efficient and clean power generating equipment that is energy-saving and environmental friendly, with an aim to vigorously develop products with clean energy such as hydropower and nuclear power and further optimize our product mix, so as to make a greater contribution to social energy conservation and emission reduction. In particular, the Group has (1) actively developed highly efficient and clean coal-fired power. In 2015, out of the 34 steam turbines generators of the Group, the output of 14 such generators with capacity of 600MW class and above accounted for 57% of the total output; out of the 33 steam turbines for power stations, the output of 9 such power stations with capacity of 600MW class and above accounted for 46% of the total output; and out of the 36 boilers for power stations, the output of 10 such power stations with capacity of 600MW class and above accounted for 52% of the total output; (2) put a lot of effort into the development of hydropower, making the percentage of hydropower products to power generating equipment increase to 24%; (3) promoted safe development of nuclear power, so that nuclear power products accounted for 9% of the power generating equipment, and the project of conventional island in Bailong nuclear power plant in Guangxi was secured, and also achieved a breakthrough in coolant pump support for nuclear power plants Fuqing 5 & Fuqing 6; and (4) developed its environmental protection business by consolidating its environmental protection business division so as to gather its resources for developing the business integrating denitrification, desulfation and dust removal function.

(3) Major measures and results of energy saving and emission reduction

In 2015, the Group continued to proceed to implementation of its sound management of energy saving and emission reduction, and strengthen its own energy saving during the course of production and operation in an effort to reduce the energy consumption of the Group's production and operation. In particular, the Group (1) continued to capture the implementation of construction projects of energy saving and emission reduction and organize the "Investment Plan for the construction projects of energy saving and emission reduction in 2015" for its subsidiaries, and follow up the progress of the construction projects regularly in order to ensure the capital investment. We have effectively reduced the energy consumption and pollutant emissions through project implementation; (2) earnestly implemented the energy efficiency improvement plan for motors through the promotion of using motors with high efficiency and vigorously commenced the replacement of obsolete motors, so as to gradually carry out the upgrading proposals for energy saving of motor system. As of the end of 2015, motors with high efficiency of a total capacity of 593.2MW were launched and over 470 motors with lower efficiency of a total capacity of 5.4MW were eliminated; (3) strengthened the establishment of management system. The Company passed the inspection of environmental management system, which further enhanced the scientific and standardized management and thus the management level was effectively promoted; (4) by capitalizing on the opportunity from "Energy Saving Promotion Week" and the "Low-Carbon Day", the Group carried out various promotional and training activities in respect of energy saving, which further increased the staff's awareness of environmental protection; (5) focused on the audit and evaluation of energy by continuing the implementation of its energy consumption quota management in major subsidiaries, in which annual energy supply plan was established and the Group has consumed energy according to the plan; (6) put more effort on energy management assessment through clearly setting up the distinct assessment indicators for different levels and monitoring the satisfaction level of such indicators and exercising one-vote veto system for unsatisfied indicators; (7) further carried out clean production activities such as providing maintenance and repair for equipment with high level of energy consumption to ensure the efficient operation of such equipment and enhance its equipment's energy efficiency; (8) strictly complied with the wastewater discharge standards by adopting the water circulating technology to save water resources and reduce pollutant emissions for any production process involving vast amount of water; and (9) launched the construction projects of intelligent heat control system by applying the contracted energy management model to reduce its capital investment and save its energy consumption of standard coal of 2,300 tonnes.

In respect of our subsidiaries, (1) Harbin Boiler Company Limited (the "Boiler Company") established a stringent management evaluation system so that its energy consumption was effectively controlled. In addition, it controlled the source of pollutant and strengthened specially on the management of major source of pollutant as well as strictly controlled the quality of water discharged at the exit of each discharging branch; (2) Harbin Electrical Machinery Company Limited (the "Electric Machinery Company") saved its capital investment and avoided risks by implementing the contracted energy management on its heating system, which achieved good energy conservation results. Moreover, it gradually reformed its coil molded installation and electricity system so that the voltage of the system became stable and the quality of power supply was enhanced, realizing an obvious energy conservation performance; (3) Harbin Turbine Company Limited (the "Turbine Company") focused on the establishment of environmental system and standardization of the management of hazardous wastes by firmly deal with and rectified any behavior which was not in compliance with relevant regulations and laws and inspecting any potential environmental hazard. Besides, it organized and commenced clean production in order to reduce its production cost whilst enhance its consolidated benefit and the management level of energy saving and emission reduction; (4) Harbin Electric Power Equipment Company Limited (the "Power Equipment Company") set up evaluation standards for energy saving and emission reduction and stipulated evaluation rules in respect of the economic responsibility system and directives in respect of any rewards or punishment regarding safety and environmental issues. Furthermore, Power Equipment Company maintained an account recording its equipment's energy consumption so as to sub-divide its statistical function and supervisory and inspective function; (5) HE Harbin Power Plant Valve Company Limited (the "Valve Company") adopted the water circulating technology to save water resources for any production process involving vast amount of water such as a water pressure test and washing process; (6) Harbin Electric Corporation (QHD) Heavy Equipment Company Limited (the "Heavy Equipment Company") performed regular examinations on the usage of energy, during which if there is any waste situation spotted, such situation together with the names of respective responsible persons will be circulated internally throughout the company and such responsible persons will be evaluated for economic responsibility pursuant to the Evaluation Methods of Energy Examination (《能源檢查考核辦法》), as a result, the number of occurrence regarding the waste of energy was reduced significantly.

(4) TECHNOLOGICAL CONTRIBUTION

1. Team of technical personnel

As at the end of 2015, the Group had 8,495 professional technicians from different disciplines, of which 2 were academics of the Chinese Academy of Engineering, 103 were experts entitled to government special subsidies from the State Council, 42 were doctorate and post-doctorate degree holders, 4 were national candidates of the "New Century Talent Project", 4 were candidates of the "Introduction Scheme of Overseas High Level Talents (Thousands Scheme)"and 15 were national technical talents.

2. R&D infrastructure

The Boiler Company has completed the application procedures for the registration of its highly efficient and clean coal-fired power station as a national key laboratory for boilers. Since the commencement of operation of its "combustion testing centre", the Boiler Company has completed the first trial for heat performance test in respect of the Researches on the Development and Verification Test of Cyclone Burners for Meager Coal in Yellow River Delta (《黃河三角洲貧煤旋流燃燒器開發及驗證試驗研究》), becoming the support to the development and application of the new type of cyclone burner. Besides, the Boiler Company has completed simulated data analysis for 11 items such as the heat performance test for Gujiao Burners (古交燃燒器), Anyuan Burners (安源燃燒器) and wind channel model building and the new type of cyclone burner of the Wushashan Project.

The Electric Machinery Company's large-scale water-lubricating thrust bearing trial platform is the first trial platform in the world built particularly for the researches and construction of the AP1000/CAP1400 main pump motors. The Electric Machinery Company conducted 1,200 tests by turning on and off real motors to test the parameters specially for certain new type of thrust bearing made with compound materials, through which much invaluable data and experience was gained, which in turn vigorously accelerated the progress of the research and production of thrust bearing and main pump of CAP1400 main pump motors.

In view of the situation that there have been problems encountered during tests for safety valves in recent years, the Valve Company commenced tests and stimulations for the CAP1400 main steam safety valves on full flow basis and modified its plans for upgrading and transforming the heat performance test platform for safety valves according to the results of such stimulations.

The Power Equipment Company has completed the construction procedures of earth and rock excavation, cornerstone laying, basement construction and backfilling for the examination and test centre of CAP1400 canned motor pump motors, which is expected to commence operation in 2016. Upon completion of the construction of the examination and test centre of CAP1400 canned motor pump motors, a base for nuclear power main pump motors with functions focusing on conducting examinations and tests of canned motor pump motors will be established.

3. Intellectual property rights

In 2015, the Group applied for 484 patents, 346 of which were granted the patent authorizations, representing a 10% year-on-year increase, and 98 of which were related to inventions, representing a 139% year-on-year increase. As at 31 December 2015, the Group owned an aggregate of 1,564 patents, 297 of which were related to inventions. The Boiler Company successfully passed the inspection for acceptance and evaluation on Harbin's demonstrating enterprises with patent advantages by the Team of Inspection for Acceptance and Evaluation under the Harbin Science and Technology Bureau (Intellectual Property Rights Division). The Turbine Company turned into a national enterprise with intellectual property rights advantages from a national trial unit for intellectual property rights.

4. Development of key technologies and new products

In 2015, the Group achieved major breakthroughs in the development of key technologies and new products:

The Group has successfully completed the major transformation project in relation to the transformation of the 600MW supercritical "W" flame boiler No. 2 of Guizhou Huadian TangZhai power plant (貴州華電塘寨電廠), through which the sound function performance met the users' requirement for technologies and progression, and the self-developed technology of supercritical "W" flame boiling was granted the intellectual property right, which in return strongly supported the further development of the market of "W" flame boilers.

The contracted 1,000MW double reheat ultra-supercritical boiler for Laiwu, which is the first of such type of boilers equipped with the highest values of parameters in the world, and Chinese first generating unit equipped with 660MW double reheat ultra-supercritical boilers successfully passed the trial operation on full loading basis for a consecutive of 168 hours, showing that Chinese competent of electricity planning, generation, installation and adjustment has advanced to a new level.

In order to further enhance the efficiency of its generating units whilst reduce the heat consumption, the Turbine Company carried out the research and production of double reheat generating units based on the reheat generating units, by which the heat of flow passages and pneumatic design were optimized, and the axis system and bearings of generating units were improved. The Turbine Company processes the independent intellectual property right over the products developed during this research and production with no export limitation. Besides, seven generating units of Heya (河亞) with a critical capacity of 600MW were successfully upgraded and transformed, through which the indicators were lowered than its designed value.

Based on the Dunhua Project, the Electric Machinery Company has completed the hydropower development, electromagnetic design, thrust bearing design as well as the design and computation in relation to a hydraulic generator's structure and stiffness for the 700m water head large-scale pumped-storage hydroelectricity units, making it an accomplishment of the company.

(5) SOCIAL PARTICIPATION

1. Responsibility management

The Group is progressively reinforcing its corporate responsibility management by adopting effective measures consistently to enhance corporate responsibility awareness. The Group also constantly disclosed relevant information to the public while performing its own social responsibilities. The Group endeavoured to achieve its concept of "Friendly environment, Warm Home":

(1) The Group nurtured and gradually incorporated the concept of corporate social responsibilities into different areas of production and operation of the corporation. Over the years, the Group has made significant commitment to electric power construction of China. Meanwhile, it has also set a model of performing the corporate social responsibilities and its social responsibility management standard has continuously enhanced. The new concept of "Friendly environment, Warm Home" introduced by the Group provided principles to support the constant progress in performing corporate social responsibilities. The Social Responsibility Committee (社會責任工作委員會) was established to construct framework for the corporate social responsibility management system. Through organic integration of the concept of social responsibilities with corporate strategies, corporate culture and corporate operation, the framework became an important way to improve the capability of the corporate to perform social responsibilities.

(2) The Group established a fundamental platform for the communication with interested parties, which improved public image and presence of the corporation. The Group maintained instant communication with interested parties through issuing documents such as "Environmental and Social Responsibility Report" and timely disclosure of important information, to accomplish its social responsibilities owing to interested parties (such as shareholders, employees, users, media and the community) and natural environment. The above effort showed dedication of the Group to create "Friendly environment, Warm Home".

Currently, the Group has 21 social-responsibility-related committees or leading groups such as the leading group responsible for energy saving and emission reduction, the leading group responsible for law promotion and the leading group responsible for "Military Families and Army Support", and has involved in 112 social organizations such as China Electrotechnical Society, China Machinery Industry Standardized Technology Association (中國機械工業標準化技術協會) and Association of Energy Saving in Heilongjiang Province (黑龍江省節能減排協會) by being a unit resuming the roles and functions of deputy chairman and managing director of such social organizations. Through participating in the activities of such social organizations, the Group has further performed its obligations of contributing to as well as its responsibility of management and supervision of the environment and society.

2. Interested Parties

Table 5 — Issues concerning interested parties of the Group and measures implemented

Interested Parties	Key issues of interested parties' concern	Response and measures of the Company
Shareholders	Persistently increasing profitability Maintaining good credit rating Enhancing core corporate competitive strengths	Regularly disclosing relevant operational information; Convening regular general meetings
Regulatory bodies	Ensuring maintenance and appreciation of assets Following macro-economic control policies of the state Ensuring the observance of laws and integrity in operations	Interpreting, publicizing and implementing state policies and regulations; Implementing strict risk control and assessment; Achieving strategic operation goals
Government	Ensuring tax contributions Creating job opportunities Providing guarantee for equipment of significance that facilitates the development of industries in China	Paying taxes in accordance with laws; Providing job placement assistance to discharged soldiers and the disabled by organizing recruitment activities; Establishing specialized institutions to respond to government policies and measures
Users	Timely delivery Good performance and reliable quality of products Good after-sales services	Conducting satisfaction survey; Acting on the philosophy of "Quality Reigns Supreme"; Holding industry forums; Organizing seminars for users
Suppliers	Building a long-term and stable supply chain Realizing a win-win situation	Adopting a "sunshine" policy in procurement with transparent procurement process; Conducting reviews on the suppliers' performance of social responsibilities

Interested Parties	Key issues of interested parties' concern	Response and measures of the Company
Society	Participating social activities Supporting the establishment of a harmonious society Building volunteer teams and performing relevant works	Employees of the corporate being elected as representatives of the Communist Party of China, National People's Congress and Chinese People's Political Consultative Conference; Actively procuring social responsibilities by actively performing social responsibilities in associations or organizations of various professional fields; Performing the duties of a founder when establishing non-governmental organizations; Releasing information regarding the performance of social responsibilities in a timely manner; Building volunteer teams to participate in community services; Maintaining national security and social stability
Environment	Reinforcing conservation of resources and environmental protection Planning and implementing contingency plans for environmental incidents	Promoting self-initiated innovation and technology advancement, manufacturing and promoting the researches and development of highly efficient and environmental friendly products with clean energy; Conducting environmental assessment for new investment projects
Media	Supporting the media Maintaining information transparency Maintaining the communication with the media	Establishing a solid system of spokesman for news; Releasing information through the Company's website and the website of Hong Kong Stock Exchange; Providing information for the media actively

3. Community Contribution

The Group proactively commenced the management of its community contribution, which included charitable projects for disaster relief, poverty alleviation, education subsidies and the construction of new rural villages, and won praise from the society by leveraging on its internal management with strict standards, excellent work performance and social influence. In active support of the policy of the Central Government and the State Council, the Group has invested an accumulated amount of over RMB1 million to the poverty alleviation activities specially arranged for the residents in Wenshan city of Yunnan Province. Key projects for village construction with major contents regarding "Infrastructure, Four Supporting, Redevelopment of Endangered Houses"were organized and implemented in Xinping Xinzhai Village under Xinzhai Village Committee of Xigu Township of Wenshan city, which effectively improved the production and living environments of 52 families with a total of 222 poor villagers.

4. Honour and Achievements

(1) Wang Dexing, Chairman of the Board and General Manager of the Boiler Company, was awarded the title of "National Model Labour" (全國勞動模範).

(2) The "20MW High-speed Variable-frequency and Explosion-proof Electric Motors for Long-haul Pipeline Compressors" (《長輸管線壓縮機20兆瓦級高速變頻防爆電動機》) project of the Power Equipment Company won a special prize for "China Machinery Industry Science and Technology Award" (中國機械工業科技技術獎).

(3) The "Development and engineering application of 800MW mixed-flow hydraulic-wheel generating units of Xiangjiaba Dam" (《向家壩800兆瓦混流式水輪發電機組研製及工程應用》) and the "Large Scale Pumped Storage Hydro Turbine Generator Units" (《大型抽水蓄能水輪發電機組》) of the Electric Machinery Company won the first prize for "Heilongjiang Provincial Scientific Development" (黑龍江省科技進步一等獎) and the "Special Award of the Province Governor" (省長特別獎) respectively.

哈电集团
HARBIN ELECTRIC CORPORATION

哈尔滨电气股份有限公司
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