



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 **2014***

INTRODUCTION

This is the environmental and social responsibility report of Harbin Electric Company Limited (the “Company”) for the year ended 31 December 2014, which covers the Company and its subsidiaries (the “Group”).

The Company was formed through the restructuring of Harbin Electric Corporation (formerly known as Harbin Power Plant Equipment Group Corporation), which is the oldest large-scale power plant equipment manufacturer in the People’s Republic of China (the “PRC”) and its three affiliates: Harbin Electrical Machinery Works, Harbin Boiler Works and Harbin Turbine Works (the “three major power factories”). These three major power factories were founded in the 1950s. The Company was established in Harbin, PRC on 6 October 1994. The shares of the Company were listed on the Stock Exchange of Hong Kong Limited (the “HKSE”) on 16 December 1994.

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 2014, the Group secured a smooth production and operation. During the year, the Group realized revenue of RMB23.794 billion, an increase of 16.07% over the previous year, while the profit attributable to equity shareholders of the Company amounted to RMB566 million, a decrease of 19.75% over the previous year. As of 31 December 2014, total assets of the Group amounted to RMB62.194 billion, equity attributable to equity shareholders of the Company was RMB 12.65 billion.

In 2015, the Group will strive to attain subsisting healthy development through implementing stringent management measures, innovative reforms and full compliance with laws.

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 2014, the Group faced the challenging market environment head-on with its hardworking spirit and pragmatic attitude, and secured a smooth production and operation. During the year, the Group realized revenue of RMB23.794 billion, an increase of 16.07% over the previous year, while the profit attributable to equity shareholders of the Company amounted to RMB566 million, a decrease of 19.75% over the previous year. The Group also recorded the bank deposits and cash of RMB13.643 billion, an increase of 14.99% over the previous year.

For the purpose of market development, in 2014, the Group strived to secure contracts from the market and signed new contracts of RMB40.472 billion, of which international contracts amounted to RMB14.87 billion. The Group continued to maintain its competitive edge in the segment of large-scale hydropower generators. Meanwhile, the competitiveness of our nuclear power generators was further enhanced. The Group maintained its share in the market of heavy fuel-fired generators in the PRC.

All the activities of the Group are based in the PRC, where approximately 81.78% of the turnover is derived from.

As of 31 December 2014, the export sales of the Group amounted to USD708.3846 million, representing 18.22% of the Group's total turnover. The Group's major export markets are Asia and South America, which account for 11.43% and 5.09% of the Group's total turnover respectively.

2. Supply chain management

The Group has adopted an operating model that integrates concentration and diversification in its supply chain management. Some materials are purchased by each subsidiary through tenders according to their own procurement procedures. Some materials are purchased by the Group through centralized tenders, the proportion of which has been growing. Meanwhile, the Group will fully capitalize on the functions of auction centers as well as perfect the tender system so as to enlarge the scope for tender, regulate management and enhance efficiency.

The Group regulates the management of suppliers by exercising stricter credit control and implementing transparent procurement process by open tenders. The engagement of suppliers is strictly subject to the following selection process:

- (1) Nominated suppliers are subject to a screening process according to the "Assessment and Control System for Suppliers" in which their experience, technical expertise and capacity will be taken into account. Those who are accepted will be added to a list of qualified suppliers.
- (2) When procurement of materials is to be made, the Group will select certain qualified suppliers from the list to submit tenders for supply contract. 5 or more qualified suppliers (3 or less in the case of specific materials which are confirmed as strategic or bottleneck supplies) will be issued an invitation for tender. Preliminary review of documents and discussion on bidding proposals will be conducted. When the final decision is made after deliberation, the Group will enter into a purchase agreement with the selected supplier.

For some suppliers, the Group may demand information in connection with their environmental and social responsibilities for review, the process of which is as follows:

- (1) When review of environmental management and control procedures, social responsibilities report and other supporting documents is required, relevant documents must be available for inspection 1-3 days in advance. Enterprises failing the certification criteria of environmental system or lacking social responsibilities report must provide documents in support of their environmental management and the performance of social responsibilities.
- (2) Personnel with certifications in environmental management system and experience of corporate management will be appointed to conduct on-site inspection according to the documents provided.

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 CO₂ by 40-45% as compared to 2005, developing a manufacturing industry for power generating equipment running on high performance and clean energy has become a new requirement for national economy. 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.

4. Anti-corruption

The Group always attaches importance to the establishment of a system advocating anti-corruption and promoting moral cleanliness, and has issued 16 relevant directives, such as "Code of Ethics for Top Leadership of Enterprise", "System for Cautioned Statement and Inquest", "Implementation Measures for the Decision Making Policy Regarding '三重一大' (Important issues, Important Personnel, Important Investments and Substantial Investment Amount)", "Provisional Measures for the Disciplinary Committees of Enterprise in relation to the Eight Required Behaviours set out by the Central Government" and "Provisional Measures Regarding Monitoring".

The Group has been actively working on the establishment of punitive and preventive measures against corruption, aiming at promoting the concept of moral cleanliness and clean corporate culture among the leadership and key personnel. 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.

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 2014, the Group had a total workforce of 19,381 employees, the formation of our staffs was as follow:

Table 1: Formation of staffs of the Group

By duties	Number of Staffs	By education background	Number of Staffs
Corporate management	3,962	Doctorate degree	34
Professional technicians	4,513	Master degree	1,215
Front-line production workers	6,710	Bachelor degree	5,434
Supporting production workers	4,196	Professional qualification	4,021

In 2014, 173 staff members left the Group. Most of them were newly-recruited university graduates, who opted for government posts or postgraduates studies.

2. Staff Health and Safety

The Group attaches great importance to the health and safety of our staff members. Each subsidiary has set up a regulatory system for production safety and occupational diseases prevention and control. Specific department is assigned to oversee the safety in production, striving to create a safe working environment for the Group's staff members and keep them out of occupational health hazard.

The Group is effectively operating the Occupational Health and Safety Management System (OHSMS18000) and Environmental Management System (ISO14000). Insisting on the policy of "placing safety on top of the priority list, taking precaution as the main task and providing comprehensive treatment", we continue to emphasize major responsibilities in ensuring production safety. Promotion, education and training on production safety were commenced extensively. News staffs will receive safety education once they join our Group. We continued to work on meeting the targets of standardization of production safety and established sound mechanisms on contingency and reaction for overseas safety issues for foreign investment cooperation. Large-scale inspections on production safety are performed regularly to eliminate any potential hazards in a timely manner. Generally, the Group arranges regular medical checkups for staff members once every year. For those who work under harsher environment, the items checked and frequency of checkups will be increased accordingly and treatment are regularly organized to minimize occupational threat to their health. These have enhanced our level of occupational health and safety and environmental management.

In 2014, the Group inspected a total of 2,020 potential safety hazard, and the rectification rate reached 99.8%. 70 emergency drills were held with 3,365 attendances. The Group invested RMB13.44 million on safety improvement and the number of participants of our safe production training reached 27,000.

In 2014, no death and serious injury cases in relation to safe production occurred in the Group. There were 43 slight injury incidents with 43 employees suffering from slight injuries. Rate of work injury involving a thousand workers was 1.65%. The status of production safety remained stable. The overall efficiency for safety and environmental protection was further enhanced.

3. Staff Development

In 2014, 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 and issued documents relating to the systems including "Measures for the Management of External Affairs", "Staff Training Management System" and "Measures for the Management of Staff Leave", strengthening the foundation for staff management of the Group.
- (2) Convened the meeting of the fund management committee, and investigated and drafted the "Management Measures of the Total Salaries Budget" and the "Regulatory Measures of the Total Salaries of Subsidiaries" in response to the change of the salary level by adjusting relevant salaries and social insurances. The standardization and scientific approach for the regulation and control of total salaries was further implemented.

- (3) Implemented the “45411” talent strategy to further enhance the training of talents. In 2014, the Group selected certain skilled experts, and formulated and issued the “Rules for Implementation of Assessment for Chief Technical Experts and Technical Experts”, and also launched the assessment for technical experts. 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 2014, 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.

4. Employee Care

(1) Employee Remuneration

The Group implemented the total salaries budget management. In 2014, the actual total salaries of employees in the Group increased 5.5% as compared with last year. The subsidiaries managed the total salaries by the combination of the total salaries plan and the budget management, and formulated the human resources plan (including the total salaries plan) and conducted monitor and analysis quarterly by incorporating factors such as the production and operation plans, personnel composition and the average wage level of the subsidiaries etc.

(2) Employee Benefits

With a view to establishing a sound and well-structured pension system and providing better assurance to a quality retirement for our staff as well as enhancing the cohesion and competitiveness of the Group, the supplementary pension system has been established since 2007 with its investment operation commenced in October 2008. The Group earnestly performed its duties in the monitor and management of the supplementary pension system, which led to the satisfactory return of the overall operation and the better risk control of the pension system. As of 31 December 2014, the number of personnel in the Group who participated in the supplementary pension system has reached more than 20,000 with nearly 5,000 staff entitled to the payment of the supplementary pension system.

(3) Employee Interests

- (i) The Group effectively protected the lawful rights and interests of the staff. By strictly complying with the "Trade Union Law" and procuring the implementation of the "Factory Democratic Management Manual". Two levels of staff representatives were able to fully perform their duties, which enabled the staff to bring the democratic rights into full play; we also implemented equal negotiation, collective contracts and labour disputes settlement system, and the signing of labour contracts with staff according to the laws and the performance of such contracts. The staffs are entitled to the guarantee for "5 Insurances and 2 Pensions", with a 100% of both the signing rate of labor contracts and coverage of the collective contracts.
- (ii) The Group carried out the quality staff project, and formulated and issued the assessment rules and management measures of technical experts. It also increased the effort of staff training by extensively holding working skill competitions and on-job trainings. The Group also implemented strategic activities such as the "Quality Staff Project" and the "Hiking Scheme for the Blue-collar Workers", and also established the "Technicians' Association" and the "Study Group" platforms named after the staff.
- (iii) The enhancement of safe production and protection of occupational health: with respect to labour production, the Group had a well-established system which strictly execute 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 protect and care 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. 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

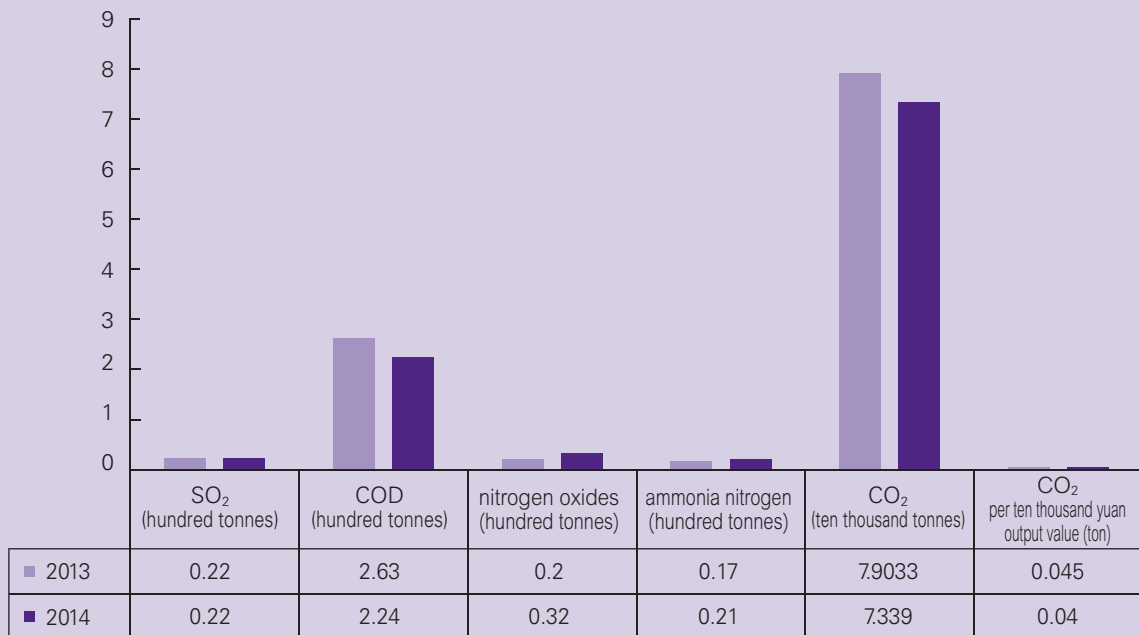
The Group always concerns itself with environmental protection and works on energy saving and emission reduction. We actively assume social responsibility to reduce water, air and noise pollution.

In 2014, the Group continued to launch a 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:

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 2014" for the 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 improvements plan for motors and closely monitor the latest policy development of the energy efficiency improvements for motors; vigorously commenced the replacement of old motors and gradually carried out the upgrading proposals for energy saving of motor system;
3. Strengthened the establishment of management system. The Group passed the verification of environmental management system and further enhanced the scientific and standardized management and thus the management level;
4. Capitalized 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 the energy. The Group continued to implement 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. Increased the effort of energy management assessment. The Group set up distinct assessment indicators with different levels, and monitored the completion of such indicators and exercised one-vote veto system for unfinished indicators;
7. Further carried out clean production activities. The Group provided maintenance and repair for equipment with high energy consumption to ensure the efficient operation of such equipment and enhance the efficiency of energy of the equipment;
8. Rigorously required the Group to meet the wastewater discharge standards: For production process with high water consumption level, we used water circulating technology to save water resources and reduce pollutant emissions;
9. Launched the construction of intelligent heat control system through the application of the energy management contract model, in order to reduce the capital investment of the enterprises and save energy consumption.

In 2014, the Group's prevailing environmental equipment operated stably, with a performance rating of over 95%. The annual emission of SO₂ (22 tonnes), COD (Chemical Oxygen Demand) (224 tonnes), nitrogen oxides(32 tonnes), ammonia nitrogen(21 tonnes), CO₂ (73,390 tonnes) and CO₂ per ten thousand yuan output value (0.04 tonnes) all complied with the State's related standards. The emission of SO₂, COD and CO₂ fell 0.4%, 15% and 7.1% respectively as compared to 2013, laying a foundation for the accomplishment of the energy saving and emission reduction target supported by the 12th Five-Year Plan.

Chart 1 Pollutant Emissions of the Group



The Group rigorously complies with environmental protection regulations regarding the declaration, transfer and disposal as well as contingency plan of hazardous wastes. It perfects the environmental management of hazardous wastes by engaging operators holding valid license for processing hazardous wastes and electronic wastes. In 2014, the aggregate amount of hazardous wastes produced by the Group was 2,433 tonnes with a 100% disposal rate.

The Group has always been paying close attention to the environmental protection issues. By constantly increasing the effort on the energy saving and emission reduction and striving to better protect our environment, no environmental matters occurred in 2014.

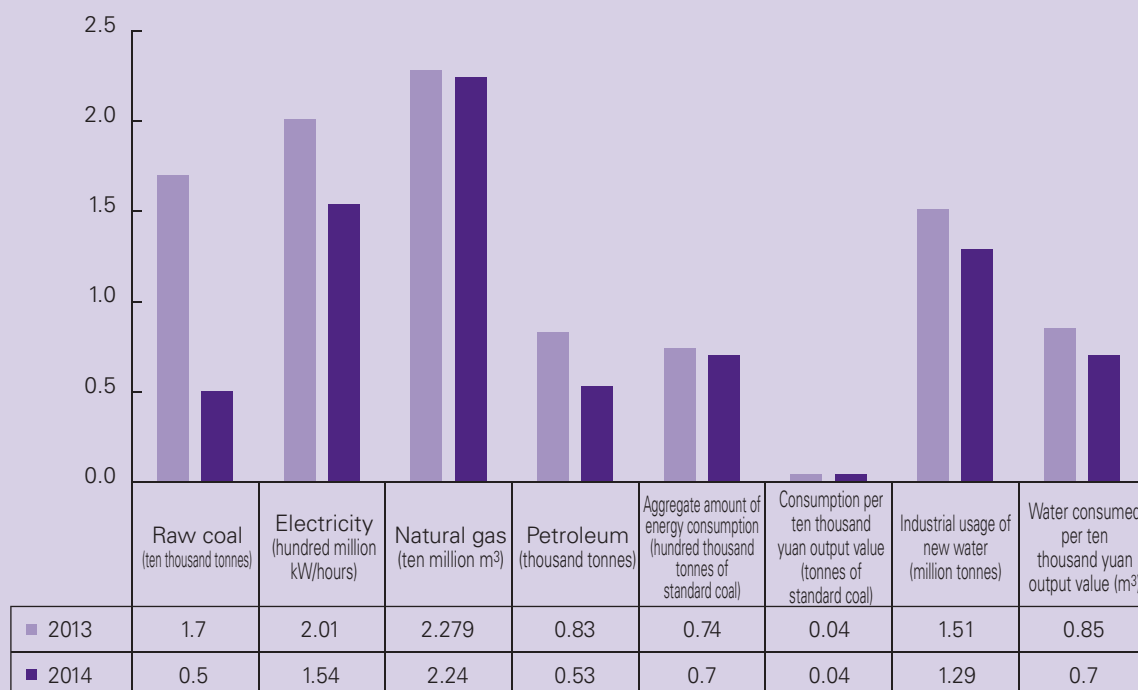
2. Usage of Resources

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 follows the above measures in 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, our utilization rate of major raw materials was 80% in 2014.

As regards energy consumption, throughout 2014, the Group has consumed 5 thousand tonnes of raw coal, 154.29 million kW/hours of electricity, 22.40 million m³ of natural gas and 562 tonnes of petroleum. Thus, the aggregate amount of energy consumption was 69,870 tonnes of standard coal and the aggregate consumption per ten thousand yuan output value was 0.04 tonnes of standard coal. Industrial usage of new water was 1,289,381 tonnes and the water consumed per ten thousand yuan output value was 0.7 m³ with a year-on-year decrease of 17%.

Chart 2 Energy Consumption of the Group



The Group continuously launched the promotion and education on energy saving and emission reduction. We procured our subsidiaries to launch a promotion campaign on energy saving, with the theme of “acting on the concept of energy saving and low carbon to build a sweet home”. The activity aims at enhancing all staff members’ awareness of energy saving, emission reduction and low carbon and striving to further reduce the aggregate consumption of energy and water per ten thousand yuan output value.

3. Energy saving and emission reduction products

(1) *Reducing energy consumption of users by providing them products with advanced specifications*

To cope with the international and domestic development needs for electricity, reduce coal consumption for power generation effectively and reduce pollutants emitted from power plants, the Group continues to develop clean, high performance and energy-saving power generating equipment. The Group accelerated the research and development of "50 to 0", aiming at a unit heat rate of nearly 50% and emission index of pollutants approximating to or reaching emission levels specified for fuel-fired generators.

The Group successfully developed clean and high performance power generating equipment such as 300MW~600MW supercritical boilers and 600MW~1100MW ultra supercritical boilers. The Group newly developed double reheat ultra supercritical boiler technology, so that heat rate increased by 2.4~2.6%, emission of CO₂ reduced by 10% and the coal consumption of power generating units dropped significantly. Capacity of steam turbines gradually increased from 600MW to 1100MW. Heat cycle rate of power generating units increased from 46.4% of the subcritical state to 49.9% of the recent ultra supercritical state;

The Group has been actively participating in the development of 700℃ boilers and steam turbines according to the National 700℃ USC Coal-Fired Power Generation Technology Innovation Consortium. By mastering and applying 700℃ ultra supercritical advanced power generation technology, power efficiency significantly increased, and the emission of greenhouse gases and pollutants significantly decreased.

(2) *Reducing emission of pollutants to meet the requirements of energy conservation and emission reduction*

Regarding emission reduction of pollutants, the Group applied super low-NO_x combustion technology to its products. SNCR deoxidant spray technology and full scale SCR technology, of which the patents were owned by the Boiler Company, were applied for high-efficiency denitrification. High-efficiency fuel-gas processing system was applied to remove SO₃ in the fuel gas. Wet electric dust removal technology was applied and preheaters underwent renovation for removing harmful substance such as dust, acidic mist, water drops, aerosol, stinky smell and PM_{2.5} in the fuel gas.

(3) *By upgrading its technology to enhance efficiency of power generating units*

In order to meet the demands in respect of energy saving and reduction of energy consumption of the power plants, we further enhanced the efficiency of power generating units. The Group improved the services over the entire lifecycle products, and fully supported the upgrade and modification of existing power generating units. The 600MW steam turbines of Datang Panshan Power Station underwent modification and heat consumption decreased by 373.32kJ/kW · h. New technology was applied to the modification of 500MW steam turbines of Guohua Panshan Power Station for energy saving and reduction of energy consumption purposes. After modification, the actual coal consumption of Guohua Panshan Power Station reduced by 8.4g/kW · h.

Currently, the Group has completed the flow passage improvement of 58 steam turbines with capacity of 300MW and above, of which 17 units were foreign-made. Among the above steam turbines, 45 units were equipped with a capacity of 300MW, 11 units were equipped with a capacity of 600MW and 2 units were equipped with a capacity of 800MW. The Group has accumulated extensive experience in modification.

(4) Proactive development of high-efficient, clean and energy-saving power generating equipment

The Group put huge effort in developing clean energy such as hydropower and nuclear power and further optimized our product mix, so as to make a greater contribution to social energy conservation and emission reduction.

1. The Group actively developed high-efficient clean coal-fire power. Out of the 40 steam turbines generators, units with capacity of 600MW class and above accounted for 48% of the output. Out of the 44 steam turbines for power stations, units with capacity of 600MW class and above accounted for 56% of the output. Out of the 28 boilers for power stations, units with capacity of 600MW class and above accounted for 71% of the output;
2. The Group makes efforts in developing hydropower. Percentage of hydropower products to power generating equipment increased to 28%. The Group completed two development projects of 700m water head pumped-storage hydroelectricity units in Jixi and Dunhua ;
3. The Group promotes safe development of nuclear power, so that nuclear power products accounted for 6% of the power generating equipment. China's first AP1000 Evaporator has been completed. Fuqing No 3 nuclear main pump has been delivered successfully, and the production capacity of the nuclear island main equipment achieved a significant increase ;
4. The Group promotes high-efficiency power generating equipment and speed up its technology innovation, achieving the common goal of emission reduction and using clean and high-efficient energy driven by the energy-saving and high-efficiency products ;
5. The Group develops other energy conservation and environmental protection business. We made great achievements in various aspects like seawater desalination, solar power generation, desulfation and denitrification.

(4) TECHNOLOGICAL CONTRIBUTION

1. Team of technical personnel

As at the end of 2014, the Group had 8,475 professional technicians of different disciplines, of which there were 2 academics of the Chinese Academy of Engineering, 79 experts entitled to government special subsidies from the State Council, 34 doctorate and post-doctorate degree holders, 4 national candidates for the "New Century Talent Project", 4 candidates of the "Introduction Scheme of Overseas High Level Talents (Thousands Scheme)" and 13 national technical talents.

The Group engaged external experts including academics and renowned experts in the industry to provide external support for the development of technological innovation system. The Group continued to enhance the management system of the post-doctorate research centre, and attracted 4 post-doctorate degree holders to work in the post-doctorate research centre of Electric Machinery Company. The first 3 post-doctorate degree holders achieved remarkable results and received support and special subsidies from Heilongjiang Province People's Government, while 1 post-doctorate degree holder received subsidies from Science Fund Projects for Young Scholars of the National Natural Science Foundation of China.

2. R&D infrastructure

The Group has 2 national engineering (technology) research centres, namely national engineering research centre for power generating equipment and national engineering technology research centre for hydropower generating equipment; 1 national key laboratory for hydropower generating equipment, 2 state-level research institutions and 4 post-doctorate research centres. Furthermore, the Group established an academic research centre for fuel-fired generators. The “combustion testing centre” of Boiler Company has completed the construction of additional trial platforms for corner fired boilers and cold modeling furnace for opposed firing boilers. Electric Machinery Company built the world’s first large-scale water-lubricating thrust bearing trial platform, effectively enhancing the production capacity of nuclear main pump. Valve Company jointly built the trial platform for heat performance test of valve with China Power Investment, pushing forward the national production of ultra supercritical valves. Design institute for nuclear power equipment obtained design certificate for second and third class pressure vessels, and simulation design for nuclear class 1 steam generators (SG) simulating parts has commenced as scheduled. The Power Equipment Company has completed reports on projects of the National Key Laboratory for Nuclear Main Pump (核主泵國家重點實驗室) and the Nuclear Main Pump Engineering and Technology Research Centre (核主泵工程技術研究中心). The Valve Company applied for and obtained approval for the “valve engineering and technology centre at power station in Heilongjiang Province” from Department of Science and Technology of Heilongjiang Province, and entered into contracts with Department of Science and Technology of Heilongjiang Province.

3. Intellectual property rights

In 2014, the Group applied for 487 patents, representing an 8.5% year-on-year increase, 185 of which were related to inventions. The Group was granted 316 patent authorizations, representing a 34% year-on-year increase, 41 of which were related to inventions, representing a 36.7% year-on-year increase. Currently, the Group owns a total of 1,161 patents, 149 of which are related to inventions.

4. Development of key technology and new products

In 2014, the Group achieved breakthroughs in key technologies and development of new products:

The Group accelerated the promotion of green development of Coal-fired power generation. 2 out of 3 national model power stations applied products under “Harbin Electric” brand;

The high-efficient 660 MW ultra-supercritical boiler of Changxin Power Plant (長興電廠) successfully passed 168-hour pilot operation, which set the world record of the highest number of operating generators;

The 800MW unit of Suizhong Power Station (綏中電廠) passed 168-hour pilot operation at full capacity, which was the first ever successful technology reformation of fuel-fired units with a capacity of over 1,000MW in China;

The Group successfully developed the reaction type and fine-tuned enthalpy drop techniques applicable to steam turbine generators, effectively enhancing the performance of both 1,000MW and 600MW class steam turbine generators;

The 4×1100MW ultra supercritical Unit No. 1, which is lignite-fired generator with the largest single-unit capacity in China and manufactured by Xinjiang Nonglushi Coal Power Company (新疆農六師煤電公司), successfully passed 168-hour pilot operation and formally commenced commercial production, marking a new milestone of high-capacity power generating units of power station in China;

The technology achievement of the world-leading 350MW supercritical boiler technology running on Zhundong coal created the very first record of boilers running on more than 95% of Xinjiang Zhundong coal in China, generally achieving a world leading standard in its technology;

Unit 1 and 2 of Huaneng Tongxiang Gas-Fired Co-generation Project contracted by the Group successively completed cycle cogeneration operation at full capacity within one month, which set a record of fuel-fired generators of the same class in the industry;

The first prototype of 30MW natural gas compressors completed inspection for acceptance in July 2014, and was delivered to Yandun Station of the West to East Pipelines for trial operation. The component processing of the second compressor is underway;

China's first AP1000 evaporator — Sanmen Unit 2 Evaporator completed a test on lateral water pressure in May 2014, marking a new enhancement on the production capacity of the nuclear island main equipment;

The design and production of 300MW reactor nuclear main pump received national approval for new key products, and enjoyed self-developed intellectual property rights, achieving a major breakthrough in manufacturing nuclear power main equipment;

Prototype of CAP1400 main pump motor has commenced operation, which would materialize our ability of producing self-developed shield generators with high capacity, further enhancing the utility rate of national-made materials;

The Group completed the test on class 3 key valve for ultra supercritical fuel-fired generators;

The construction works of the main desalination equipment pilot project for the world's first ten thousand tons class off-grid wind power generating system has fully completed, and successfully finished testing on water discharge in March 2014. The generating system has put into full operation.

(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 disclosed relevant information to the public continuously 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. The Group has made significant commitment to electric power construction of China for over 60 years. Meanwhile, it also set a model of performing the corporate social responsibilities and the standard of its social responsibility management enhancing continuously. 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 in improving the capability of the corporate to perform social responsibilities.
- (2) The Group established a fundamental platform for 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 22 leading groups under social-responsibility-related committees participating in 112 activities of social organisations.

2. Interested Parties

Table 2 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	Disclosing relevant operational information regularly; Convening general meetings regularly
Regulatory bodies	Ensuring maintenance and appreciation of assets Following macro-economic control policies of the state Ensuring compliance with laws and integrity in operations	Interpreting, publicising 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 facilitating development of industry in China	Paying taxes in accordance with laws; Providing job placement assistance to discharged soldiers and the disabled by organising recruitment activities; Establishing specialised institutions to respond to government policies and measures
Users	Timely delivery Good performance of products and reliable after-sales services	Conducting satisfaction survey; Acting on the philosophy of "Quality Reigns Supreme"; Holding industry forum; Organizing seminars for users
Suppliers	Building a long-term and stable supply chain Realising a win-win situation	Adopting a "sunshine" policy in procurement with transparent procurement process; Conducting review on the suppliers' performance of social responsibilities

Interested Parties	Key issues of interested parties' concern	Response and measures of the Company
Employees	<p>Fully satisfying labour rights and interests</p> <p>Fully protecting their personal health and safety</p> <p>Establishing systems for personal capability enhancement</p> <p>Effectively implementing democratic management and enforcing democratic rights</p>	<p>Providing systematic general body check for employees and regular body check on occupational diseases;</p> <p>Standardising the management of employment contracts, promoting an equality-based corporate culture, setting up a fair recruitment system and providing guarantee for employees' remuneration and benefits package;</p> <p>Providing various types of training programmes for staff of different levels and commencing technical challenging activities for different positions to offer opportunities and platforms of advancement for staff;</p> <p>Convening meetings for representatives from the Party and staff and implementing the resolutions passed thereat, assigning a reception day to safeguard the legal interests of the employees</p>
Business partners	<p>Exchanging ideas and cooperating mutually</p> <p>Ensuring strategic cooperation</p> <p>Complementing one another</p> <p>Sharing information</p>	<p>Signing strategic cooperation framework agreements and strategic agreements;</p> <p>Arranging visits and meetings between senior management of both parties;</p> <p>Holding conferences on specific subjects in the industry;</p> <p>Joining industry associations</p>
Community	<p>Supporting economic development and social advancement of the local community</p> <p>Supporting charitable activities of the community</p>	<p>Supporting construction of the community, initiating activities for the community, establishing community centers and serving the residents of the community</p>

Interested Parties	Key issues of interested parties' concern	Response and measures of the Company
Society	Participating social activities Supporting building of a harmonious society Establishing volunteer team and 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; Establishing volunteer team to participate in community services; Maintaining national security and social stability
Environment	Reinforcing conservation of resources and environmental protection Planning and implementing contingency plan for environmental incidents	Promoting self-initiated innovation and technology advancement, manufacturing and promoting research and development of high performance environmentally-friendly cleaning products; Conducting environment assessment for new investment projects
Media	Supporting the media Maintaining transparency in information Maintaining communication with the media	Establishing a solid system of spokesman for news; Releasing information through websites of members of the Group; Providing information for the media actively

3. Community Contribution

The Group actively participated in charitable community activities.

In 2014, the Group donated RMB0.2 million to Wenshan in Yunnan to provide focused assistance to the poor; In January 2014, Harbin City confronted widespread blood shortage. The Group took an immediate action and contributed 1,801 successful blood donation in a total amount of 482,730 mL of blood in 10 days.

4. Honour and Achievements

“Innovative research and development and the application steel tubes for 600 °C ultra-supercritical thermal power generating unit (600 °C 超超臨界火電機組鋼管創新研製與應用)” was granted the 1st Class Award of “National Science and Technology Progress Awards”, “Research and development and industrial application of ultra-high current short circuit power generator (超大電流短路發電機自主研製與工程應用)” was granted the 2nd Class Award of “National Science and Technology Progress Awards”.

“Research and development of excitation device for impulse power generators (衝擊發電機勵磁裝置研製)” was honoured the First Prize of “Science and Technology Progress Award of Chinese Machinery Industry”.

“Research and development of 60 Hertz series air-cooled gas turbine power generator (60 赫茲系列空冷汽輪發電機研製)” and “Research and development of 940mm end-class moving blades specialised for large-scaled air-cooled gas turbines (大型空冷汽輪機專用940mm末級動葉片研製)” were granted the 2nd Class Award of “Heilongjiang Provincial Science and Technology Progress Award”.

Eight outstanding academic achievements from “Key Technology Study on 1000MW ultra-supercritical tower type double tangential boilers (1000MW 等級超超臨界雙切圓塔式鍋爐關鍵技術研究)” were granted Natural Science Outcome Award in Harbin City.

In April 2014, the Group was honoured the “National May Day Labour Award” Certificate; Guo Yu, the general manager of HE International Company, received the “National May Day Labour Award” Medal; and the high-pressure assembling team of welding section of Cold-work Factory (冷作分廠焊接工段高壓總裝班) of the Turbine Company was honoured the “National Workers’ Pioneer” title.

In July 2014, Party General Branch of the Cold-work Factory (冷作分廠) of the Turbine Company was honoured the title of “Advanced Basic-Level Party Organization of Central Enterprise (中央企業先進基層黨組織)”; Han Jiu-qing from the Boiler Company received the title of “Outstanding Communist Party Member of Central Enterprise (中央企業優秀共產黨員)”; and Zhang Rui-rong, the secretary of the Party Committee of the Electric Machinery Company and Industry Company of the Electric Machinery Company, was granted the title of “Outstanding Communist Party Worker of Central Enterprise (中央企業優秀黨務工作者)”.



哈电集团
HARBIN ELECTRIC CORPORATION

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