



东方电气股份有限公司
DONGFANG ELECTRIC CO., LTD.



2018

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

Power Progresses With Warmth
Dream Coexists With Responsibility



DEC Official WeChat



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COMPANY PROFILE

Headquartered in Chengdu, Sichuan Province, Dongfang Electric Corporation Limited ("Dongfang Electric"), is an extra-large enterprise controlled by Dongfang Electric Corporation. After six decades of development, Dongfang Electric has developed into one of the largest power equipment suppliers and EPC contractors of power station projects in the world. It has been listed on the Shanghai Stock Exchange (stock code: 600875) and the Hong Kong Stock Exchange (stock code: 1072).

Dongfang Electric controls Dongfang Electric Machinery, Dongfang Steam Turbine, Dongfang Boiler, Dongfang Heavy Machinery, Dongfang Wind Power, DEC Automatic Control, DEC International Cooperation, Dongfang Wuhan Nuclear, Dongfang AREVA, Dongfang India, Dongfang Indonesia, etc., which are distributed in provinces, municipalities, and autonomous regions in the PRC including Sichuan, Guangdong, Tianjin, Zhejiang and Hubei as well as West Bengal in India and Jakarta in Indonesia.

Having produced power equipment with an aggregate of over 540,000 MW as at the end of 2018, Dongfang Electric continued to take the lead among the peers all over the world. At present, its products and services are exported to nearly 80 countries and regions, including United States, Canada, India, Pakistan, Vietnam, Indonesia, Saudi Arabia, Bosnia and Herzegovina, Sweden and Brazil.

As the country's base for localization of major technical equipment and a national certified corporate technology centre, the Company boasts leading research and development capacity in power equipment manufacturing industry in China. With the self-development, cooperation between production, learning and research, there is a large bulk of major technical equipments and products with independent intellectual property rights. the Company is equipped with the capability of development, design, manufacture, sale and equipment supply of large scale hydro-electric, coal-fired, nuclear, steam, wind and solar power generating equipment, as well as

undertaking power plant projects as a main contractor. It has mass production capacity for products such as hydroelectric turbine generating units of 1,000MW, ultra-supercritical thermal generating units of 1,350MW, nuclear power units of 1,000MW to 1,750MW, heavy-duty gas turbine equipment, a full range of direct-drive and doubly-fed wind power generating units, high efficiency solar power station equipment, hydrogen passenger cars, large environmental protection and water treatment equipment, power and control system, new energy battery and power storage system, intelligent equipment, etc.

Looking into the future, Dongfang Electric will pass on the objective of "co-creating value, sharing success" and implement the "12345" development strategies, thereby making the Company a worldwide top-notch enterprise with global competitiveness and driving China's and global economic development with green power.

Disclosure of Core Data



operating income
RMB

30.706

billion



total capacity from power
generation equipment completed

22.7602

million KW



net profit attributable to the
parent Company RMB

1.129

billion

year-on-year increase

67.71%

New contracts RMB34.9 billion year-on-year increase 8.7%

The proportion of coal-fired power in the operating income of the Group decreased from 44.2% at the end of 12th Five-Year to 40.6%

The proportion of new energy rose from 9.7% at the end of "12th Five-Year" period to 12.7%

The proportion of power station services increased from 3.7% at the end of "12th Five-Year" period to 5.6%

According to the 2018 analysis report on China's 500 most valuable brands released at the World Brand Conference sponsored by World Brand Lab, "Dongfang Electric" ranks the 134th with a brand value of RMB35,257 million, representing an increase of RMB5,876 million or 20% as compared with RMB29,381 million in 2017.



DEC
东方电气
DONGFANG ELECTRIC
**China's 500
Most Valuable
Brands**



Brand Value
RMB35.257 billion



Ranking the 134th



Representing an increase of RMB5.876 billion in its brand value as compared with that of last year



increase of 20%

ENVIRONMENT

Live And Let Live Work
Together For Our Common
Future

- Emissions
- Use of Resources
- Energy conservation and environmental protection



Environment

Emissions

Emission of greenhouse gases

Emission of CO₂ amounted to 233,108 tonnes, decreasing by 12.8% year on year.

Hazardous wastes

Disposed of hazardous wastes of over 1,690 tonnes in aggregate throughout the year.

Category and volume

No.	Emissions	Unit	Volume	Increase/decrease as compared to the corresponding period last year (%)
1	So ₂	Tonnes	214	-2.1
2	COD	Tonnes	411.6	-1.9
3	NO _x	Tonnes	401	-1.5
4	Ammonia nitrogen	Tonnes	94	-2.9

Measures: Carry out investigation on environmental pollution risks, identify important environmental pollution sources, check environmental protection risk areas, and supervise the implementation of rectification measures and risk prevention measures. Strictly implement the requirements of environmental protection laws and regulations, carry out regular environmental monitoring, effectively operate environmental protection equipment and facilities, and meet the discharge standards of all kinds of pollutants. Strengthen the whole process management of hazardous waste transfer, storage and disposal to ensure that the risk of environmental pollution is controlled.

Use of Resources

Water consumption



4.267 million tonnes, decreasing by 0.3% year on year.



Total energy consumption

No.	Name	Unit	Volume	Increase/decrease as compared to the corresponding period last year (%)
1	Comprehensive energy consumption	Tonnes of standard coal	98200	-13.1
2	Comprehensive energy consumption per 10,000 output value	Tonnes of standard coal /RMB0' 000	0.0346	-0.3
3	Electricity	0' 000 Kwh	28362	-9.5
4	Natural gas	M3	4173	-9.8

Measures

Improve the organization and management system for energy conservation and emission reduction, strengthen target assessment, and ensure that the responsibility for energy conservation and emission reduction is implemented. In accordance with the requirements of laws and regulations on energy statistics, we will further standardize basic administration tasks such as monitoring, measurement and statistics-gathering. Effectively operate and continuously improve the energy management system. Actively carry out energy saving work through technical transformation, process improvement, production control, etc., strengthen the control of energy use process, and improve energy utilization efficiency.

Energy Conservation and Environmental Protection



Shaanxi Energy Linyou Integrated Project of Desulfurization, Denitrification and Dust Removal in Circulating Fluidized Bed Generating Units

Dongfang Electric has long been committed to developing and strengthening the energy-saving and environmental protection industry. Under the guidance of Xi Jinping's thoughts on ecological conservation, it conscientiously implemented the decisions and plans of the CPC Central Committee on pollution prevention and control. By mastering the process technologies about waste gas treatment, solid waste disposal and water development as well as the manufacturing technologies of key equipment, it has emerged as an environmental protection service operator providing integrated services including technological research and development, project investment, engineering design, construction and operation services.



Waste Incineration Power Generation Project (Phase III) of Guangda Environmental Protection Energy(Jiangyin)Co.,Ltd.



Waste Incineration Waste Heat Boiler Project Changshu Pufa



Catalyst Production Workshop of Dongfang KWH



Seawater Desalination Project of Indonesia Longwan



Governance and Operation

Co-create Value Seek Common Development
Governance And Operation

- ⊙ Industry
- ⊙ Strategy
- ⊙ Supply Chain Management
- ⊙ Product Responsibility
- ⊙ Green Equipment
- ⊙ Capital Responsibility
- ⊙ Users Service

GOVERNANCE AND OPERATION

Industry

Six types of energy sources are developed simultaneously



Hydropower



Thermal power



Nuclear power



Steam power



Wind power



Solar power

Five lines of business are coordinated



High-efficient clean
energy equipment



Renewable energy
equipment



Engineering
and trade



Modern manufacturing
services industry

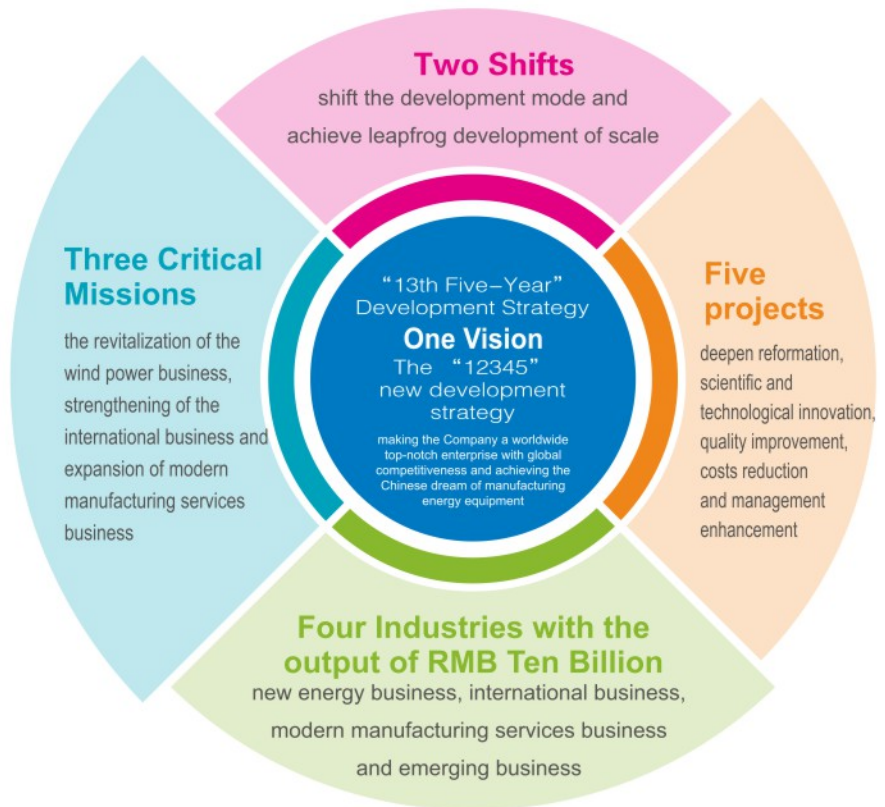


Emerging
growth industry

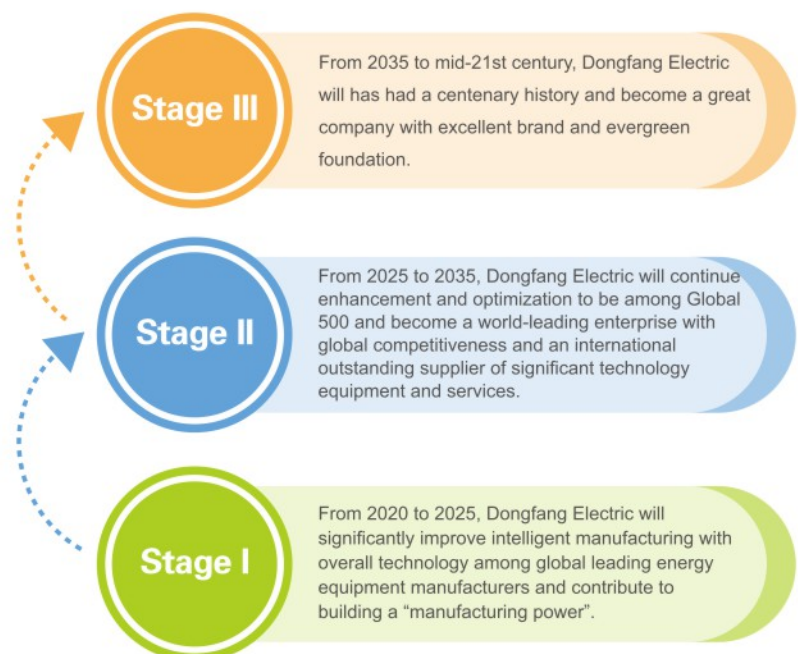
Pursue the common idea of harmonious coexistence of human and nature

Strategy

The “12345” new development strategy



Clear definition of three development stages



Supply Chain Management



1. It implements the standard process management on the collective procurement management platform (SRM) in accordance with the Measures on Suppliers Management. All suppliers are required to conduct information registration. The responsible department on procurement shall select potential suppliers for access review from registered suppliers and apply for evaluation on suppliers after review. The centralized management department will determine the contents and methods for review on suppliers (review on the origin or documents) based on the basic conditions and the newly-added/expanded scope after the suppliers passed the evaluation, organize the evaluation and prepare the evaluation report on suppliers. Suppliers passed the review on the origin or documents will be adopted under the qualified supplier management. SRM is open to the public and more than 24,000 suppliers have been successfully registered on the SRM so far. After the successful registration of suppliers, the evaluation group with members from the technology, business and quality departments will carry out access evaluation and review on suppliers and those passed the evaluation will be

adopted under the qualified supplier management. Currently, over 21,000 suppliers have conducted businesses with DEC.

2. In accordance with relevant provisions of the Measures on Suppliers Management (for Trial Implementation) and the Quality Management System on Purchased and Outsourced Products, suppliers involved on any of the following circumstances shall be disqualified:

- (1) Concealing quality accidents without reporting;
- (2) Refusing to implement the quality modification requirements raised by the enterprise/subsidiaries;
- (3) Being involved in dishonest quality behaviors;
- (4) The performance capacity failing to meet the requirements of the contract and causing significant economic losses or effects on the enterprise/subsidiaries;
- (5) Receiving more than three complaints from customers without being effectively modified;
- (6) The evaluation results on qualified suppliers failing to meet the standards of the enterprise/subsidiaries on qualified suppliers.

For suppliers involved in the above (1) to (5) circumstances, part or all of the supply capacities of these suppliers will be blacklisted after the approval of the leaders of the Company on quality. Suppliers on the blacklist shall not be used in two years. Those involved in serious circumstances shall be banned all the time.

3. The Company formulated the Implementation Plan on Real-time and Dynamic Evaluation on the Results of Suppliers in accordance with the Measures on Suppliers Management (for Trial Implementation) and carried out dynamic management in the SRM. The system is generally qualified for introduction so far. It will require all subsidiaries applying the results evaluation results in the bidding and procurement process after introduction.

4. Where suppliers are involved in significant quality or typical quality issues, it will conduct quality warranty inspection on suppliers and require modification of issues found out in the inspection and even shut them down. The suppliers' qualification of those failing to complete the modification will be suspended or even cancelled.

Product Responsibility



Measures:

In 2018, DEC gave priority to quality and efficiency and comprehensively strengthened quality management. Through the improvement of the quality management system, it consolidated the identification of quality issues, implemented the rectification of issues and strengthened the quality accountability. Following the guidance on quality work, it vigorously carried out quality enhancement.

Fully advance quality improvement. It released the Action Plan on Quality Improvement and prepared 40 action plans. All subsidiaries launched various themed activities on quality management with their own characteristics.

Systematically build quality culture. It released the Outline on Building Quality Culture of Dongfang Electric (2018-2020), prepared the roadmap for building the quality culture and carried out the publicity and training at different levels through various channels to interpret the core connotation of the quality culture with "integrity and transparency", "craftsmanship", "doing well at first time" and "seeking excellence". It established an organizational structure, specified the responsibilities and prepared plans on the building of quality culture. 167 action plans have been prepared.





Key leaders lectured on quality



Exhibition on typical quality issues



Organized feedbacks on quality experience

Problem orientation and accountability strengthening. It carried out special campaigns on identification and rectification of quality problems and "reviewed" the rectification of quality accidents, achieving the closed-loop management with "reasons analysis—responsibility accountability—problems rectification—prevention of reoccurrence" on quality accidents. 23 leaders under the management of Party organization were held accountable. 423 person-times of quality accountability campaigns were carried out in all enterprises under the Company.

Perfect and improve management system. It obtained the three-in-one certification on the management systems on quality, environment and occupational health and safety at the headquarters. All enterprises under the Company comprehensively completed the updating of the standards under the ISO9001: 2015 quality management systems.

Results:

The quality accidents decreased 14.29% year on year in 2018 and the quality loss of decreased 13.41% year on year with a quality loss ratio down 5.13% year on year.



Held accountable for quality problems:

23 person-times.



Quality accountability:

423 person-times

14.29%

13.41%

5.13%

Year-on-year decrease in quality accidents

Year-on-year decrease in quality loss

Year-on-year decrease in quality loss ratio

Green Equipment



High-end hydropower

The Company mastered key technologies for mixed-flow hydropower units with a capacity of 1,000 MW, the largest of its kind in the world, and completed the development of a high-quality turbine runner in Baihetan. The Company succeeded in independently developing pumped-storage technologies. The large pumped storage units at Shenzhen Pumped-Storage Power Station were successfully put into operation and performed excellently. This is yet another success after Xianyou Pumped-Storage Power Station and Xianju Pumped-Storage Power Station. The model runner developed by the Company for Changlongshan Pumped-Storage Power Station which had the world's second highest and China's highest water head won the first prize in a competition with world-class enterprises.



Clean coal power

Large-capacity, high-parameter and low-emission thermal power products independently developed by the Company delivered practical results, and product performance reached the world advanced level. The contract for million-KW 630°C modules with ultra-supercritical double reheat features for the demonstration project with the highest parameters in the world took effect. Efforts are underway to carry out construction design and develop high-temperature materials and key technologies. The overall scheme for the world's first 660MW ultra-supercritical CFB boiler passed a national-level evaluation, and the boiler was approved for demonstration applications. The world's first 600MW supercritical CFB boiler was successfully put into commercial operation and reached the international leading level. The new-generation flow path design system independently developed by the Company was verified. The first 660MW modules with ultra-supercritical double reheat features ran well after optimization.



Safe nuclear power

The world's largest EPR 1750 MW nuclear power main unit has been put into operation at Taishan Nuclear Power Station. The main plants of the third generation nuclear power unit, represented by the national key S&T special project CAP1400 demonstration project Shidaowan Project, the independently developed Fuging No. 5 and No. 6 units of Hualong No. 1 and Fangchenggang No. 3 and No. 4 units, have been developed. The main performance indicators have reached the international leading level. The development of the main plant of the Generation IV sodium-cooled fast reactors for nuclear islands has been accelerated, and some prototypes have been manufactured. The development of the main plant of the modular small reactor offshore is being implemented.



High-efficient steam power

In terms of gas turbines, international cooperation on and independent development of gas turbines went hand in hand. The M701F4+ gas turbine generator set, which was market-oriented and more advanced, achieved mass production and had a high localization rate. China's first fifth-generation M701F5 heavy-duty gas turbine was successfully put into operation at Huaneng Beijing Thermal Power Plant. The Company made breakthroughs in R&D turbine construction and the testing of key components for the F-class 50MW heavy-duty gas turbine independently developed by it, and completed the compressor and burner tests with good results. At the end of 2018, the Company successfully commissioned the compressor and burner. Work on the development of high-temperature turbine blades was in full swing, prototype manufacturing began, and an independent R&D system for heavy-duty gas turbines took shape. The Company developed China's leading R&D and testing capabilities for heavy-duty gas turbines, and completed plant construction, equipment installation and commissioning for the test bed for gas turbines.



Green wind power

The development of new wind power products has been accelerated, and the core competitiveness of the wind power industry was enhanced vigorously. 4MW wind turbines are successfully offline, providing large capacity, long blade flagship products for the market. The Company began mass production of the 5MW offshore wind turbine, giving it equipment support capability that covered Class I-III wind farms; the Company accelerated the development of 7MW and 10MW class giant offshore wind power prototypes, and obtained the first 10MW class offshore wind turbine design certificate in China.



Advanced solar energy

1. Solar energy PV technology further upgraded and the conversion efficiency of crystalline silicon batteries further improved. The R&D efficiency of batteries with an imbrication thickness of 160um and 58B 180um reached 21.84% and 22.08%, respectively. The 5E technologies, the distributed printing technology, the high-efficient screen printing plate technology and other technologies achieved application with a leading position in the industry. The R&D of double-sided PERC batteries has been completed with an efficiency of 21.9%-22% on the positive side and 70%-75% on both sides. The imbrication double-sided batteries have completed design and passed the reliability verification.

2. Breakthroughs have been made in solar thermal technologies to support the market expansion. It preliminarily mastered the technology on the design of system integration projects of solar energy PV power stations. China's first 50,000 kilowatt high-power steam turbine unit in Delingha was successfully developed. It won the bidding for the complete set of thermal islands and power generation islands for the solar thermal power generation project in Kumul and complete sets of supply contracts have been entered into.

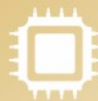


Development of New Technologies and in Emerging & Growth Industries



Hydrogen energy and fuel cell

The first 10 hydrogen fuel cell buses with independent intellectual property were put into service in Sichuan province for demonstration purposes. The buses chalked up a total of nearly 280,000 kilometers, with one bus accomplishing a maximum of 40,000 kilometers. The buses have served a passenger volume of 400,000 person-times. Their safety, stability and reliability were preliminarily verified, and their performance reached the domestic advanced level. The Company created the overall design scheme for a 10MW class hydrogen fuel cell system for decentralized power generation with independent intellectual property.



Industrial turbines, power electronics and control

Industry-leading small and medium-sized steam turbine products for the photothermal, drive and environmental protection industries were technologically advanced and highly recognized by users, forming a new economic growth point. The Company achieved market-oriented applications for its high-dynamic, high-performance, high-reliability high-voltage inverter, and completed design, development and prototype manufacturing for the fifth-generation inverter. The Company launched an online customer service platform and completed the development of the CAP1400 nuclear power excitation system and Hualong No. 1 turbine control system.



Distant maintenance, smart equipment, electric vehicles and clean burning

The distant monitoring and diagnosis system on coal-fired units has been introduced in power plants in Wanzhou and Hengshan. The smart wind farm system for wind power units has been applied. All these have laid foundation for the full-life management of products and promoting the transformation of manufacturing services industry. Core technologies on digitalized plants have been applied for demonstration in the plants for steam turbines blades. The automatic welding production line for headers has been applied in the boiler header plants. The generator coil and digitalized image manufacturing plants under construction further enhanced intelligent manufacturing. The power assembly system for electric vehicles has developed series of products. The 100KW driving system for electric buses has been operated under demonstration in the Chengdu Bus Plant and recorded small bulk sales. The sample units for AC and DC charging piles have successfully passed the type tests and achieved demonstration application. The energy management and monitoring system in the "PV-storage-charging" integrated power stations in the expressway service zones of the State Grid Corporation of China has been operated under demonstration and achieved distant data interaction. The economical coal gasification technologies for industries passed the pilot test with independent technologies available for industrialized application. Hard carbon materials for energy storage pass the pilot test and the process and technology for bulk production have been verified, which has achieved small bulk supply for users.



Capital Responsibility



150 are on the SSE
126 are on the Stock Exchange

Being awarded Level-A in information disclosure by the Shanghai Stock Exchange in four consecutive years

I. Information disclosure

In 2018, the Company completed 276 information disclosures (with 150 on the SSE and 126 on the Stock Exchange). It focused on the completion of the preparation of the annual report, the first quarterly report, the interim report and the third quarterly report as well as the complicated information disclosure on the Rainbow Project on the SSE and the Stock Exchange. It well prepared for the information disclosure and conducted in an orderly way.

Thanks to its outstanding performance in information disclosure, the Company was awarded Level-A in information disclosure by the Shanghai Stock Exchange in four consecutive years.

II. Investors relationship management

1. Results briefing Conferences of the Company

It continuously conducted results briefing conferences and roadshows on annual reports and quarterly reports and actively communicated with investors. It actively participated in the "collective reception day for investors" organized by the Listed Company Association of Sichuan and arranged the "Week for Board Secretaries on Duty" and other activities.

2. Routine Communication With investors

It maintained routine communication with investors, including telephone for consultancy, reply of emails, investors visits as well as the website of the SSE, the special page for the Company, the investors platform of the CSRC bureau and other interaction channels and actively answered questions raised by investors on SSE e-interaction platform.



III. Establishing reputation of the Company in the capital market

1. Always putting investors first

In the capital market, the Company puts investors first and strengthened the protection of investors' interests. Firstly, DEC improves the investment return mechanism. It enhances the capacity for continuous returns; perfects the profit distribution system, the specific arrangements and commitments on cash bonus policies in particular; and establishes diversified investment return system to improve the share repurchase system. Secondly, it guarantees investors' right of access to information. It enhances the targeted information disclosure and discloses information with significant influence on investors' decision making in a truthful, accurate, complete and timely manner with clear and concise disclosure contents to fully disclose risks.

2. Investors sharing dividends on development with enterprise development

DEC fully considers investors' benefits in each capital operation and achieved win-win results for the Company, investors and the capital market. The overall listing of Dongfang Electric Corporation brought expectation on excellent returns to medium and small shareholders with bright development prospects. Through the public issuance in 2008, the non-public issuance in 2009, the conversion of capital reserves in 2010 and the issuance of convertible bonds in 2014, investors shared the dividend in the development of the enterprise with its growth. The Company follows the concept of actively returning investors and distributed cash dividends when conditions are met with a dividend proportion of 10% to 30%. Even in 2018 when the Company recorded huge losses due to the earthquake, it also distributed cash dividends.

3. Solidly conducting information disclosing and being responsible to investors for each

commitment and figure

As a key responsibility and obligation to the social public and investors, the Board and management attach great importance to information disclosure. They set up the concept with investors' demand as the orientation and established a complete information disclosure system and strived to follow the orientation of investors' demands, make comprehensive disclosure with characteristics and be responsible to investors for each commitment and figure. DEC has been awarded Level-A in information disclosure by Shanghai Stock Exchange for consecutive years.

4. Protecting investors and maintaining relationship with investors

DEC has been adhering to the concept of "establishing excellent corporate image and building DEC's brand in the capital market" on investors relationship management. It has established a working system on investors relationship management covering the headquarters of the Company and its subsidiaries and set up a working mechanism with the participation of the functional departments of the headquarters of the Company and its subsidiaries for regular discussion and research with communication with securities analysts and fund managers. After the disclosure of annual reports and regular reports, the Company has maintained communication with domestic and overseas investors through field and telephone meetings and carried out roadshows in the PRC, Hong Kong, Singapore and other places for years. It fully leveraged the communication function of the network and opened a special column on investors relationship management to display the operation of the Company in a systematic and overall way and establish multi-channeled communication mechanism. It has established an active communication

mechanism. Prior to the convening of the general meeting, it actively contacts shareholders and communicated with them on matters to be considered. It also contact shareholders and seek their opinions on key matters.

5. Paying attention to the communication with industry association and media and more accurately master key concerns of investors

The Company has established regular communication mechanisms with the CSRC, the SSE, the CSRC Sichuan Bureau, China Association for Public Companies and other regulatory authorities to focus on key regulatory issues and make information disclosure in a transparent, fair and timely manner. It contacts with core media and deeply communicates with media on the development of the Company to prevent the releasing of various negative reports and unfair information and actively set up the image of the Company with "open and transparent" operation. It also minimizes the influence of rumors on investors through dominant media and reduces negative and false reports from the source.

6. Significantly reducing connected transactions to practically protect the benefits of medium and small shareholders

After the completion of the restructuring of the Rainbow Project, the amount and proportion of connected transactions between DEC and Dongfang Electric Corporation and its subsidiaries significantly reduced. The transfer of target assets into DEC will reduce connected transactions, consolidate the independence of DEC and improve the assets quality and financial conditions of DEC, enhance its sustainable profitability and effectively protect the benefits of all shareholders of DEC.

Users Services



Distant diagnosis system



Leaders of the Company see customer services managers off to their positions



License awarding to Xinjiang Service Center

I. Actively responding to policies on energy saving and emission reduction and winning bidding for key modification projects

The Company won the bidding for key steam turbines flow path modification projects, including Datang Togtoh Power Station, Guangdong Pannan Power Station, 350MW units (imported from Hitachi) in Jiujiang and 300MW (full reaction) of Guodian Weifeng. In the non-coal-fired power industry, it won the bidding for the GGH heat exchanger for new high-coke chemical equipment of Chengdu Guohua Environmental Protection in Fengcheng, the EPC project of SCR denitration for sintered gas of Guangxi Liuzhou Iron and Steel Group, the comprehensive modification for 4×220t/h boilers meeting the designed capacities and the denitration and ultra-clean emission of Beihai Thermal Power Plant and the EPC of the denitration and ultra-clean emission of two 480t/h boilers of China National Coal Group in Yulin, Shaanxi.

II. Vigorously offering active services to support power enterprises

1. It fully carried out the customer service manager system for the first time in the industry and established 99 services managers for the customers of the whole Group covering all power plants (covering 675 power plants globally with a total installed capacity of 442 million KW) with DEC as their supplier. It issued the new Standards on Users Services of Dongfang Electric and the Work Regulation and Measures on Customers Services Managers and established the monthly reporting system on the work of customer services managers. On the basis of "providing services 24 hours a day", it adds new contents under the new times and provides one-to-one targeted services to power plants with equipment supplied by the DEC in order to achieve re-creation and re-appreciation of services value and provide prompt user services, which is highly appraised by users.

2. Improving the service model of regional service centers. It newly established Xinjiang Service Center and Tianjin Service Center of the DEC after the Inner Mongolia Service Center, which brings close customer services, significantly improved the service response and enhanced customers' satisfaction.

3. Actively promoting the Internet plus services model to improve service means

(1) It completed the research and development of the distant diagnosis system. Two 1 million KW units of Wanzhou Power Plant and No. 2 unit of Hengshan Coal Power of Shaanxi Yulin Energy Group were brought under operation, providing customers with operation diagnosis, operation improvement, repairing suggestions and other services covering the whole life of units.

(2) It developed an online service platform and officially brought it under operation on 28 September 2018. It is an IT service platform providing customers with online consultancy, promotion of new technology and plans, case sharing on units operation, feedbacks and interpretations to questions from users, orders and contracts management as well as sale of spares and components, covering online services, questions feedbacks, technical dynamics, Dongfang e-shopping (online stores for spares and components) and other functional modules. It achieved the organic combination of "Internet plus services", improved the services of six kinds of power stations of the DEC and provided customers with efficient and authoritative channels for communications on issues and initial solutions. denitration and ultra-clean emission of two 480t/h boilers of China National Coal Group in Yulin, Shaanxi.

Service models



> User training

We organized Guohua Power 2018 annual training course on the improvement of professional proficiency of directors of science and technology department, with 37 directors from the science and technology departments of 26 power plants and units participating. Good training effect was achieved and the training course won high praise from Guohua Power. The faculty of management took the initiative to contact Guohua Power, and proposed to hold seminars on scientific and technological innovation and industrial cooperation. By leveraging the training platform, the faculty of management further publicized the technical advantages of Dongfang Electric and realized face-to-face communication with trainees, so as to facilitate the exchanges of technology and talents between the two sides and serve the market.



> Building of the Customer Online Service Platform

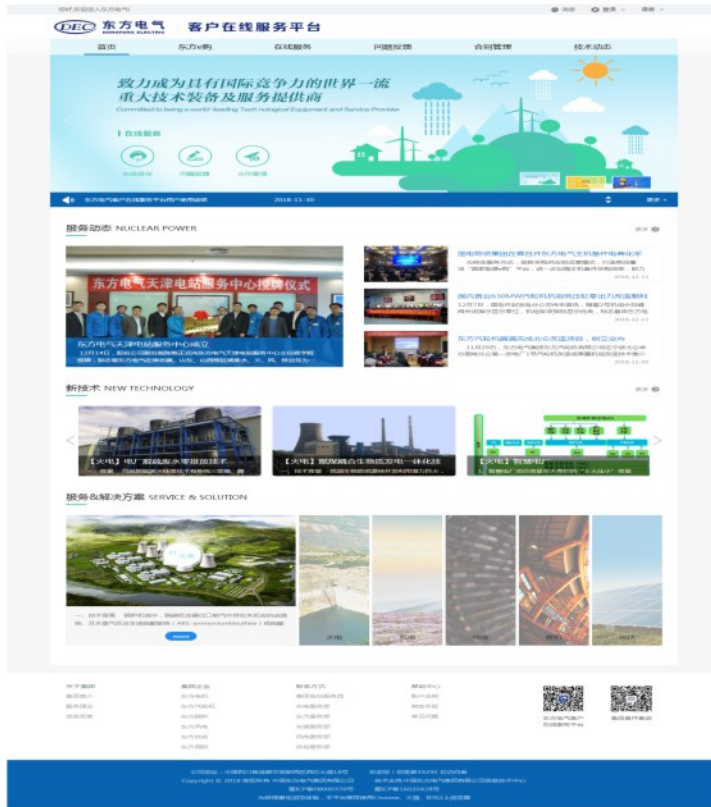


Launching ceremony video conference

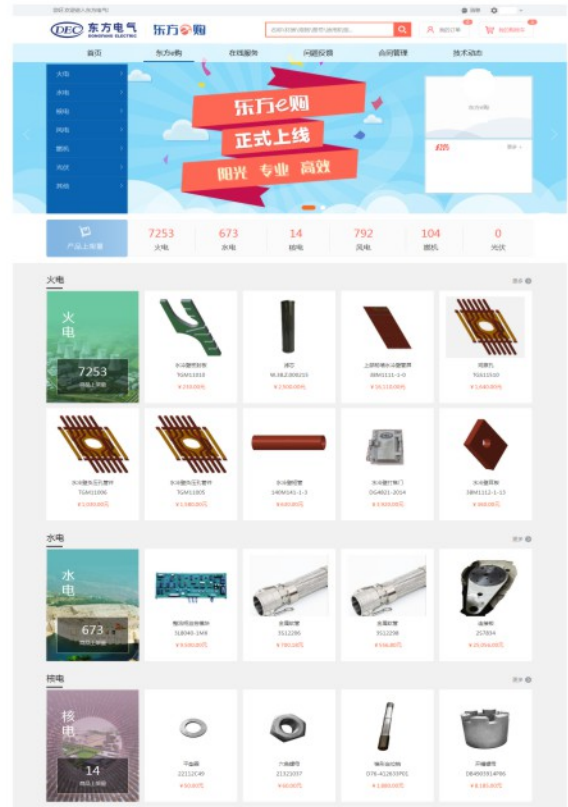


Set up of the platform

Web page of the online service platform



Home page of the online service platform



Home page of the e-shop of spare parts of DFEGSC.COM

Internal training

After the launch of the platform in November, three training sessions were conducted in Dongfang Electric, Dongfang Boiler and Dongfang Electric Machinery and provided to relevant experts and customer managers from Dongfang Wind Power and DEA on the usage, procedure and process of the platform.





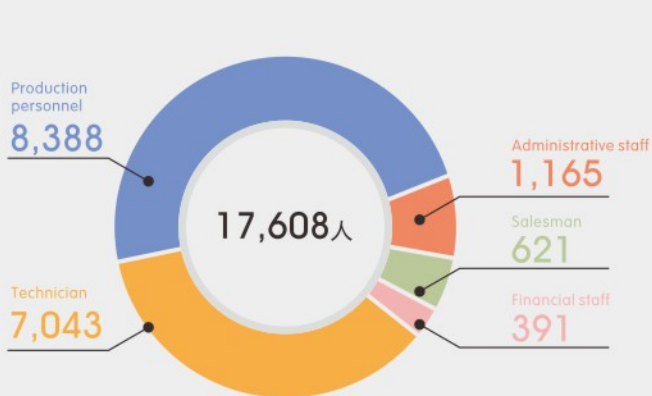
EMPLOYMENT AND LABOUR PRACTICES

Share success and build a harmonious community

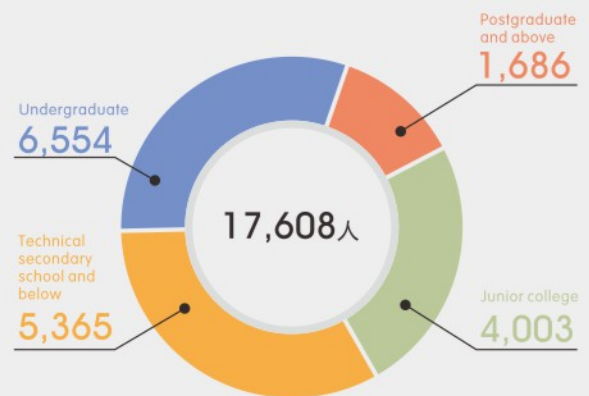
- ◎ Employment
- ◎ Health and safety
- ◎ Development and training
- ◎ Culture caring



Employment



By profession composition



By education



Health and Safety

(I) Occupational health and safety measures adopted:

1. Strengthen the implementation of safety production responsibility system

Conscientiously implement the requirements of relevant laws and regulations on work safety, consciously accept the supervision of local governments and strictly implement the enterprises safety production responsibility system. The safety committee shall organize and convene special sessions regarding work safety to study and arrange key tasks related to work safety. Safety production indicator shall be included in performance appraisal and the "one vote veto" system for safety production shall be strictly implemented.

2. Implement requirements on hierarchical control of safety risks

Improve the identification range and standards of major hazards and update the control list of major hazards in accordance with relevant provisions on the hierarchical control of safety risks. Combining with the work safety inspection and campaigns against non-compliant operations, we will carry out special safety inspection, as a result, more than 3,500 potential safety hazards were identified and eliminated.

3. Strengthen monitoring of staff's occupational health

According to the requirements of the Law on Prevention and Control of Occupational Disease, occupational hazard factors and status shall be monitored and evaluated regularly, occupational health examination program shall be improved and occupational health exam shall be organized and carried out. 4,992 workers exposed to occupational hazard factors took physical examination over the year with an examination rate of 100%.

4. Reinforce safety education and training

We shall seriously implement the education and training responsibility system for enterprises safety production. By focusing on job safety operation rules, occupational health prevention, fire safety, traffic safety and emergency response, we conducted various safety education and training for more than 22,280 people throughout the year.

5. Enhance emergency response capacity

We shall improve the emergency plan and strengthen the training and drill of the emergency plan in accordance with the requirements of emergency management. More than 100 different emergency exercises were carried out over the year and the emergency response capacity was further improved.

(II) Working days lost due to work-related injuries: 7,033 working days.

(III) Number and rate of casualties: one, a ratio of 0.051‰. No major or above production safety accidents occurred, and the overall work safety situation was under control.

Examples of responsibility:

(1) Dongfang Electric Machinery: It compiled 23 site safety management documents for Baihetan hydropower station, and organized an activity themed "As a party member, your safety is my duty" with the electrical & mechanical engineering division of Baihetan hydropower station to encourage party members to excel in their performances, in a bid to build a lean on-site factory management model for Baihetan hydropower station, achieving the goal of zero accident of Baihetan hydropower station.

(2) Dongfang Heavy Machinery: In response to the super typhoon "Mangosteen", it started emergency response in time, assigned leaders to take the lead and arranged staff on duty 24 hours a day for key positions, minimizing the economic losses caused by "Mangosteen".



Development and Training

In 2018, by adhering to the strategy of “go abroad and bring home”, Dongfang Electric took a new step to open schools and continued to “expand scope and improve quality”, as a result, the training level reached a new height. Over the year, a total of 47 training courses and special lectures were completed, with 3,144 person-times and 9,066 person-days.

In particular, “Dongfang Electric young leaders training class” program was awarded “Excellent Management Training Program Award” for talent cultivation for central enterprises by China’s Association for Executives Development (China Business Executives Academy, Dalian).



A special training course on the spirit of the 19th CPC National Congress at the Party School of the CPC Central Committee



Symposium on the study and implementation of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and on the spirit of the 19th CPC National Congress



Excellence in management training programmes



Training course on party building of Joint venture



Yan'an Training



High-level forum



Honesty education



Training course for lean management promoters



Training for new leaders



Training course for lean management advocates

Cultural Caring



Win-win cooperation

In 2018, by grasping the opportunity of "5.12" 10th anniversary, the 40th anniversary of reform and opening up and the 60th anniversary of the establishment of Dongfang Electric, Dongfang electric continued to perfect the cultural development mechanism and made great efforts to create a cultural atmosphere highlighting hard working, fighting, exploitation and working together for a great cause and a brilliant future.

By organizing a series of activities, including the activity to mark the 40th anniversary of reform and opening up and the 60th anniversary of the establishment of Dongfang Electric around new achievements in a new era—achievements, rethinking and future, the ceremony to mourn the "5.12" victims and heroes sacrificed in earthquake relief, conference to commemorate "5.12" earthquake relief and the 10th anniversary of post-disaster reconstruction of Dongfang Steam Turbine, old leaders colloquia to commemorate the 40th anniversary of reform and opening up and the 60th anniversary of the establishment of Dongfang Electric, commemoration meetings, staff art performance and exhibitions on development and revitalization achievements, Dongfang Electric reviewed its development achievements over the past 60 years, continued to uphold third-tier culture and hero corporate culture, lead all cadres and staff to stay true to the mission and always keep in mind our mission and gathered strength to promote development, so as to write a brilliant future in the new era.

COMMUNITY

Public Benefits for the Community



Dongfang Electric Machinery



Dongfang Steam Turbine

Our subordinate companies have long been committed to public welfare while pursuing business growth. By virtue of their own features, they launched an array of activities, such as voluntary blood donation, poverty alleviation donation, community services and volunteer services to actively fulfill corporate social responsibility, demonstrating the excellent quality of Dongfang Electric staff of selfless dedication and willingness to help others. By doing so, they delivered positive energy to our society and made a great contribution to the construction of the spiritual civilization of the Group.



Dongfang Heavy Machinery



Dongfang Boiler



Dongfang Wind Power

Care for Staff



Equality and diversity

(1) Remuneration and dismissal

In 2018, the Company continued to improve corporate salary distribution and employee performance management system, with the aim to realize synchronous growth of enterprise revenue and employee income. The Company managed the labor relations according to laws and rescind and terminate employment contract in accordance with relevant laws and regulations, and shall pay economic compensation as required. Thus, the legitimate rights and interests of the Company and employees were safeguarded, and a harmonious employment relation was promoted.

(2) Recruitment and promotion

The Company formulated the Measures for Management of Staff Recruitment and Employment to strictly standardize the recruitment process, and was willing to be monitored to ensure the recruitment is open and transparent. In addition, the Company strictly followed the principle of people foremost, problem orientation, openness and fairness. The Company continued to conduct multi-level management of employees' career in an all-around way, to fully tap the potential of staff and created a career development platform for staff, in a bid to achieve the common development of the Company and employees. The Company also devoted to perfect and standardize the employee career management system. Specifically, guided by employees' personal development goals, supported by competence improvement and development and subject to the whole process performance management, the Company effectively solved the problem of "learn and earn" and "you reap what you sow". Furthermore, the Company continued to standardize job promotion, post communication and the process and mechanism of ability enhancement and development, to ensure the conditions for

employee career development are open to all employees, and all employees are entitled to enjoy equal opportunities to participate, and the process and results are fair.

(3) Working hours and holidays

The Company has established and improved the working hours, rest and vacation system, to effectively guard the rights of employees to rest and take vacations.

(4) Equal opportunity and anti-discrimination

The Company has always adhered to the strategy of "growing our business with talents" and has committed to building a strong talent pipeline. Under the guidance of the principle of openness, equality and fairness, the Company set up a human resource management system covering recruitment, appraisal, promotion, allocation and training, offering equal human resource service to each employee from institution perspective. Moreover, recruitment shall be conducted based on the actual needs and job descriptions of employers without discrimination of any kind as to gender, educational background, institutions, nationality, birthplace, political status and other factors. As to job hunters of similar major and position, a fair, just and transparent selection system shall be adopted for personnel selection and recruitment, to fully reflect the principle of equal employment. Besides, after employees are on board, they have to go through systematic, comprehensive and scientific training, regardless of what colleges they come from or what academic experience they have, and then are assigned to professional counterpart positions. Employers shall not give different special treatment to employees due to their different backgrounds, or wear colored glasses in management, or categorize them by subjective consciousness.

Poverty Alleviation



According to the resolutions of the CPC Central Committee and the State Council, as well as the arrangements made by SASAC of the State Council, the government of Sichuan Province, relevant industry authorities and local party committees and governments, Dongfang Electric Corporation shall help lift people out of poverty in ten areas of three provinces, one city and seven counties, including Zhaojue County and Rangtang County, Sichuan Province and Jixian county, Shanxi Province. In 2018, with infinite loyalty to the CPC, sincere respect for General Secretary Xi Jinping, and profound sympathy for the poor, Dongfang Electric, taking the fight against poverty as a major political task, followed General Secretary Xi Jinping's instructions on poverty reduction and the arrangements of the CPC Central Committee and the State Council by implementing the "Three-Year Action Guidelines of the CPC Central Committee and the State Council on Winning the Battle against Poverty" (《中共中央國務院關於打贏脫貧攻堅戰三年行動指導意見》) and the three-year action guidelines of SASAC of the State Council for state-owned enterprises to lend full support to the campaign against poverty. Specifically, it formulated the three-year (2018-2020) plan of Dongfang Electric Corporation for targeted poverty relief, focusing on the five-sphere integrated poverty alleviation mechanism for completing poverty alleviation projects. Under the plan, practical measures were taken and poverty alleviation effort in targeted counties (towns and villages) bore fruit.

The Group dispatched a total of 16 staff manager to lead 44 poverty alleviation projects and invested RMB11,110,000 in poverty relief. Among others, it purchased RMB7,210,000 worth of agricultural products in poverty-stricken areas (including 65 tons of potatoes, 4522.5 kilograms of walnuts, 5500 pieces of Wujin bacon, 5743 pieces of Fagopyrum tataricum products of Zhaojue County; 8,548 boxes of Zushan soft drink of Peqxe tu ji County, 5,614 boxes of apples, 4,191 pieces of dried persimmons, 1,391 pieces of wild mushrooms, 131 bags of millet of Jixian County; 6,000 pieces of rapeseed oil, 6,000 pieces of wild honey, and 15,000 kilograms of yak meat of Rangtang County), helping sell RMB11,930,000 worth of agricultural products, and trained 34 grassroot staff managers and 218 technicians. As a result, Jixian County, Tebulo Village of Zhaojue County and Dashigou Village of Rangtang Village, both being the Group's focus in poverty alleviation, were lift out of poverty, preparing the groundwork for winning the fight against poverty alleviation in 2020.

➤ Innovating industry development to strengthen self-independence

Industry development was seen as the key to targeted poverty relief. First, the RMB30,000,000 "Industrial Investment Fund of State-owned Key Enterprises for Poor Regions" was set up, which aims to upgrade local industry by supporting big employer projects that are effective in poverty reduction. Second, the Company purchased RMB1,500,000 worth of local specialties such as Wujin pig, Fagopyrum tataricum and vegetables from 307 poor families at Zhaojue County, increasing their income and placing confidence into industrial development. Third, with the Company's help, Jixian County established its E-commerce association and was selected as a national model county for E-commerce, for which it obtained a special fund of RMB20,000,000. Fourth, to advance cultural and tourism prosperity across Rangtang County, the Company organized activities with a theme of "Rangtang Beauty-DEC Friendship" to introduce Rangtang culture to DEC and Deyang City. Fifth, instead of traditional donations, the Company mobilized its party members and staff to purchase quality specialties in poor areas, which will in turn benefit local industry development and people's income rise. In 2018, the Company purchased and help sold nearly RMB20,000,000 worth of agricultural specialties in targeted counties.





Electrician Skills Training Course



Zhaojue Scholarship Donation Agreement Signing Ceremony



Planting and breeding technologies training



Dongfang Electric Zhaojue First Hope Primary School



Pre-School education point in Tebulu village



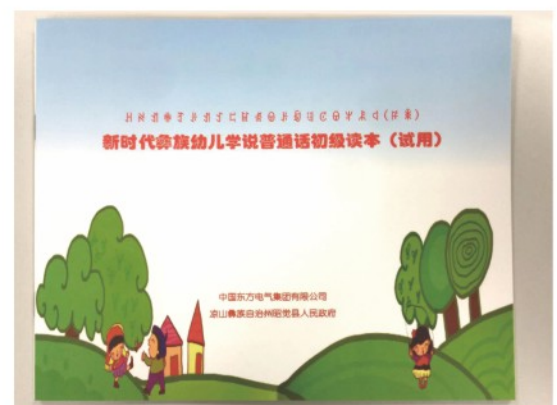
Grant of scholarships

➤ Improving education to eliminate intergenerational poverty

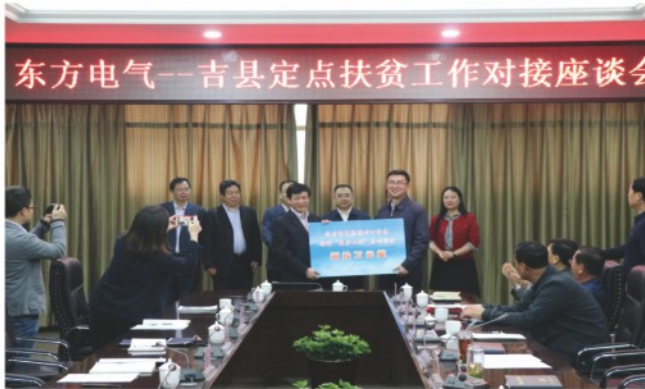
Relieving poverty through education was prioritized. First, RMB7,000,000 was poured into preschool construction to realize "one preschool for one village" in Zhaojue County. In 2018, three standard preschools were finished (10 to be built in 2020), which set the stage for formal preschool education, particularly mandarin study, for children aged between 3 to 6. Second, for a unified teaching method and objective as well as teacher training, the "Primary Mandarin Textbook for Children of Yi Nationality in a New Era (trial)" was jointly compiled with the Education Bureau of Zhaojue County, which will gradually give way to a national version. Third, RMB1,350,000 was contributed to set up scholarships at Zhaojue County, Jixian County and Litang County. This will play an important role in encouraging impoverished students to finish school, teachers to improve teaching quality and outstanding students to grow further. Fourth, RMB700,000 was invested into hardware and software upgrade at Dongfang Electric Zhaojue First Hope Primary School to promote its teaching quality, setting an example for other preschools. Fifth, vocational trainings, breeding and cultivation technology trainings were held to help local people, especially the youth, find jobs or start businesses, thereby boosting the local economy.



Preschool education point in Laniu Village, Zhaojue County



Primer on Learning Mandarin for Children of the Yi Nationality in the New Era (Trial)



"Solidarity Engineering" Special Funds Donation Ceremony



Donation of three-piece suits for the living room



Assistance to construction of anti-hail nets



Donation of kitchen and bathroom facilities

➤ Proactively engage in poverty alleviation to help improve the living environment

Adhere to the improvement of the living environment as the basic requirement of targeted poverty alleviation. First, the Company donated RMB360,000 to build an activity room for the Party branch of the new stockaded village of the Yi nationality, reconstruct the kitchen and bathroom for the poor households in Zhaojue County, and provide household supplies and sanitation supplies for the poor households, benefiting 54 households, and helped the construction of "four-merit village" to promote transformation of outmoded habits and customs. Second, for implementation of the rural lighting project, the Company donated RMB650,000 to construct 166 solar energy street lamps for Pushi Township and Tebuluo Twonship in Zhaojue County, Linyu Village in Jixian County and Jiye Village Three in Daocheng County to solve the inconvenience for over ten thousand villagers in respect of getting around in the evening due to the lack of public lighting facilities. Third, the Company donated RMB100,000 to build anti-hail nets of 24.5Mu for three poor households in Jixian County. Fourth, the Company contributed RMB800,000 to implement the "Solidarity Engineering" and set up targeted medical aid fund to help the families with difficulties in their basic life due to the large amount of medical expenses spent large to pull through the difficulties. Fifth, the Company donated RMB500,000 to implement the road reconstruction project for the section from Baishan Temple to Sanchakou in Jixian County, directly benefiting more than 1,800 people in two natural villages. Sixth, with the assistance of the Company's donation of RMB500,000, a safe drinking water project was built in Xiadashigou Village, changing the situation of Xiadashigou Village that the farmers and herdsmen drink river water in all ages. Seventh, the Company donated RMB200,000 to help repair the damaged and out-of-service small hydropower station in Shili Township of Xiangtang County to satisfy the electricity demands of a total of 110 villagers from the government authorities and 12 households in Shili Township. In addition, the excess electricity can be sold to the State Grid, and the economic benefits therefrom can be used for the collective economy of Shili Township.



Buita Rural highway



Solar street lights



➤ Pragmatically carry out poverty alleviation through employment, help a whole family to shake off poverty by virtue of one-person employment

Insist on promotion of employment as a fundamental measure for poverty alleviation. First, through open recruitment activities, the Group adopted the principle of equal priority for the personnel with willingness for employment and meeting position requirements. Second, targeted practical agricultural technology training was performed to promote quality enhancement and upgrading of local industries. Third, more efforts were placed on the trainings on occupational skills with focus on employability in the society to promote employment in the society.

➤ Explore and implement poverty alleviation through Party building, focus on the new model of pairing to tackle difficulties

Adhere to the poverty alleviation through Party building as a strong engine for targeted poverty alleviation. First, pairing promotion project was carried out for the Party branch and the Party branches of the Group provided targeted assistance for grassroots Party branches of the county in respect of pairing to mutually promote the normalization of Party building, and Party members made special donations to support the construction of hardware facilities including activity room for Party members. Second, all Party branches (Party groups) of Dongfang Electric were organized to pair with poor households to effectivley understand the actual needs. The Group improved its endogenous power through upgrading skills and expanding horizons, to get rid of poverty stably. At present, the Group has 115 Party branches paired with 316 poor households. Third, the Group selected the right and strong cadres on temporary positions, the first secretary and team members, and supported and guided the first secretary's full discharge of Party building responsibilities, in order to enhance the organization capacity. The political functions of village-level Party organizations were improved with the Group's assistance in terms of learning on a regular basis, regular work meetings, serving the people, building a clean government and other systems with the stress laid on the "three meetings and one lecture", themed Party lecture and other political life within the Party, forming a powerful leading force to take the lead in poverty alleviation and

rural revitalization. Fourth, training was carried for grassroots cadres and Party members in a planned manner. The Group organized study on the thought on socialism with Chinese characteristics in the new era as proposed by Xi Jinping and publicized various policies on Party building, poverty alleviation and rural revitalization. A group of mainstay Party members were cultivated for Party building and rural revitalization in the process of poverty alleviation. Fifth, the Group assisted local Party organizations to carry out focused two-way cultivation activities, namely to cultivate Party members into mainstay members for overcoming poverty and achieving prosperity, to promote the construction and expand the team of rural Party members. Sixth, to give full play to the role of promoting the League building by the Party building, the Group organized all League members to contribute to tackling poverty.



Performance of Overseas Social Responsibility

In 2018, Dongfang Electric always regarded overseas projects as an effective carrier to convey the national image and brand value. On the basis of fully understanding the social, environmental and corporate internal reasonable demands of other countries, Dongfang Electric continued to conduct innovation in respect of communication and exchange on social responsibility by further expanding the dimensions of the work in terms of corporate social responsibility, to gain wider cognition, recognition and support and deepen communication with local stakeholders. Thus, it presented a good image as the overseas envoy of China.

Local employees:

Strengthen the cultural integration of local employees, comply with local laws, respect religious beliefs, understand cultural differences, safeguard women's rights, strengthen employee training, enhance the sense of belonging, honor and loyalty of foreign employees, and enhance the recognition of the image of our country through corporate culture identity.

Project name	Number of employees
Laos Nam Mang Power Company Limited	18
Office in Hanoi, Vietnam	3
Coastal project in Vietnam	9
Office in Egypt	1
Project in Bosnia and Herzegovina	12
Office in Pakistan	5
Office in Laos	4
Nam Ngum 1 project	4
Turkish branch	1
Project in Indonesia	1
Gibe 3 project in Ethiopia	20
Office in Calcutta, India	6
Indonesian company	2
Indian company	27



Stanari Project team in Bosnia and Herzegovina



Gibe 3 project team



Local employees of Laos Nam Mang Power Company Limited

➤ Harmonious development with the community



China Central Television (CCTV) interviewed Dongfang Electric's wind power project in Russia. On the banks of the Volga River, more than a dozen huge wind turbines are risen to the ground and, together with the quiet and flowing Volga River, constitute a magnificent scenery. This is the first large-scale wind power project in Russia.



The staff of Dongfang Electric rented house in a small town 5 kilometers away from the site of the wind power project in Russia. The landlord who rented out the house warmly invited the CCTV crew to visit the home.

The team of Dongfang Electric won the championship of the 2018-2019 basketball game held by the China Chamber of Commerce in Ethiopia.



On the morning of 24 January 2019, Ji Ping, the new Chinese Ambassador to Bosnia and Herzegovina, together with Xie Yu, the Commercial Counselor, and other embassy staff, visited the Stanari Project in Bosnia and Herzegovina. Ji Ping attached great importance to the development of Chinese enterprises in Bosnia and Herzegovina. After delivery of his credentials, he visited the Stanari Project in Bosnia and Herzegovina as the first stop, reflecting his high attention to Dongfang Electric.



Laos Nam Mang Power Company Limited participated in the fish stocking activity organized by the provincial government

Laos Nam Mang Power Company Limited set up a water tower for the downstream Hakai Village





- Laos Nam Mang Power Company Limited participated in the tree planting activity organized by the National Assembly



- Laos Nam Mang Power Company Limited participated in the discussion on social environment obligations held by the Central Joint Steering Committee



- Laos Nam Mang Power Company Limited attended the commendation conference held by Lao Ministry of Energy and Mines and accepted the ministerial level certificate granted by Lao Ministry of Energy and Mines



- In July 2018, the heavy rainfall and floods in northern Vietnam including Lai Chau, Lao Cai and other provinces caused severe property losses and casualties. The office in Hanoi, Vietnam proactively participated in the "donation to victims suffering from heavy rainfall and floods in mountainous areas in northern Vietnam" and donated VND10 million (equivalent to RMB3,000), which was highly praised by all walks of life and the media in Vietnam.



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