



與創造者共創未來  
CREATE OUR FUTURE TOGETHER

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## 002 Chairman's Statement



**Huang Dinan**

Secretary of the Party Committee  
Chairman and CEO

Oriented from customer value and with a theme of innovative development, we intend to provide China and the world more effective, more environment-friendly and more economical energy and industrial equipment as well as complete solutions, and make Shanghai Electric a multinational group with global layout, transnational operation, international competitiveness and brand influence.

Equipment manufacturing industry is the backbone of the manufacturing industry, and high-end equipment manufacturers have irreplaceable main responsibilities for the revitalization of the real economy. Confronted with the historical intersection of a new round of energy revolution, science and technology revolution and the transformation of the development mode of economy, Shanghai Electric actively seizes opportunities, addresses difficulties and tries hard to practice the missions and responsibilities of a state-owned enterprise by following the development idea of “Create Our Future Together” .

### Being the Protector of Ecological Environment

As an energy equipment manufacturer, and based on “emission reduction” , “zero emission” and “emission treatment” , we develop high efficiency and clean energy, new energy and environmental protection industry vigorously. The coal consumption of the1000MW second reheat ultra-supercritical power generation units, designed and manufactured by us, is 256.86g/kwh, which is 5.34g/kwh lower than best level of the world. We achieved leaping development and became the world's largest manufacturer of complete set of offshore wind turbine in offshore wind power field in 2016. We have introduced the desulfurization, denitrification and dust removal device for treatment of exhaust from thermal power equipment and also have developed several garbage disposal and water treatment projects, thereby we have protected the blue sky, green land and water.

## 003

### Being the Pacemaker of Intelligent Manufacturing

With the deepening of integration of informatization and industrialization, the intelligent manufacturing based on cyber physical system is leading the transformation of manufacturing method. As an industrial equipment enterprise, Shanghai Electric focuses on intelligent design, intelligent management, intelligent production and intelligent service and takes “Internet+” as its new engine of industrial upgrading. In 2016, we established Shanghai Electric Automation Industry Group and acquired MANZ and BAW in Germany at appropriate time, thus having further strengthened the industry base. Shanghai Mitsubishi Elevator Control System has achieved real time monitoring of operation, timely alarm for breakdown, quick response to treatment and performance optimization and upgrading based on big data, and smart elevators on-line has currently exceeded 60,000 units.

### Being the Fighter of Science and Technology Innovation

Shanghai is accelerating the construction of a science and technology innovation center with global influence, and manufacturing industry is the main battle field of science and technology innovation. We adhere to the "Technology-intensive and Asset-light" development idea, make good and adequate use of geographical advantages and policy advantages, struggle to cultivate the ability of grasping the global science and technology progress and the general trend of industrial transformation, foster the ability of self-innovation and integrating innovation resources as well as the ability of understanding the market demand deeply and leading innovation chain. We maintain about 4% of investment rate in science and technology, and convert more technology advantages to market advantages in a faster speed through focusing on “Two Product Plans” . Shanghai Electric obtained half of the four product gold awards in 2016 Shanghai Industrial Expo.

### Being the Practitioner of the Initiative of One Belt, One Road

Infrastructure interconnection is a priority area of the construction of One Belt, One Road. We press forward the diversified and horizontal & vertical internationalization of

Shanghai Electric by making full use of strategic opportunity period, business model innovation and coordinative utilization of two resources.

In 2016, 48.9% of new orders in respect of single unit, engineering and service received by Power Generation Group are from overseas. The Ethiopia- Djibouti railway power supply project constructed by Power T&D Group not only won a rather good international reputation but also laid a solid foundation for our deep development in Africa. Environmental Protection Group actively undertook biomass power generation projects of countries along “One Belt, One Road” . Our “Small Target” is making the transnationality index reach about 15% by 2020.

2017 is a year when the supply-side structural reform is deepened, macroeconomic situation and the industry development trend are getting more complex and severe. It is the hardship that mirrors our courage and persistence while it is the practice that makes itself more precious. Shanghai Electric will conscientiously implement the spirit of the central economic work conference, and, under the strong leadership of Shanghai Municipal Party Committee and Government, adhere to the general work tone of “Making Progress while Maintaining Stability” , maintain the strategic focus, improve weak lines precisely and solidly, promote management improvement steadily, strengthen the traditional advantageous industries by new technologies and new types of business, well develop the new industries by new models and mechanisms, inspire the soft power of enterprise culture with the spirit of ingenuity, continue to promote the going-out of market, production capacity, technological innovation and brand, and make new contributions to the pillar segments of the country!

Secretary of the Party Committee  
Chairman and CEO



## 004 President's Statement



### Zheng Jianhua

Deputy Secretary of the Party Committee  
Executive Director  
President

#### Straighten the Backbone

Shanghai, located in the coast of East China Sea, is the cradle of modern industry in China and the birthplace of China's modern civilization. Shanghai Electric was originated here over 100 years ago.

As the representative of Shanghai industry, Shanghai Electric shoulders the heavy responsibility of the industrial development in China thanks to its one “First” after another, including but not limited to, China's first set of 6000KW coal-fired power generation unit, the world's first dual internal water cooled generator, China's largest 12,000 tons hydraulic press, China's first set of 300MW nuclear power unit, the world's first mirror-surface grinding machine, China's first marine crankshaft, China's first 1000MW ultra-supercritical thermal power generation unit, China's first ten thousand ton seawater desalination equipment, China's first offshore wind turbine and the world's first set of coal-fired second reheat power generation unit. Shanghai Electric has made indelible contributions to the development of modern industry in China on its way to becoming the largest integrated equipment manufacturer in the PRC, making China like a giant stand firmly in the east of the world.

#### Go Global

We always firmly believe that Shanghai Electric is not only a Chinese group, but also a group of the world, thus Shanghai Electric arranges overseas layout actively. 1/3 production capacity of Shanghai Electric Power Generation Group has gone overseas and 48.9% of its new orders in 2016 are from overseas; Shanghai Electric Power T&D Group always focuses on the development in Africa, the Ethiopia-Djibouti railway power supply project constructed has won an international reputation for Shanghai Electric; Shanghai Electric Environmental Protection Group has snatched the market share in the layout of countries along “One Belt, One Road” and has made significant contributions to the environment protection cause of friendly Asian nations such as Indonesia; Shanghai Electric is listed on top 100 Asian brands, ranking 98 in 2016 top 500 Asian brands.

## 005

### “Carrying Forward the Spirit of Ingenuity and Casting Powerful Weapons of the Country”

#### Realize the China Dream

“China Dream” has been the greatest dream of the Chinese nation since modern times with a view of realizing the great rejuvenation of the Chinese nation. As one of the largest integrated equipment manufacturing groups, Shanghai Electric has always taken the China's rejuvenation as its responsibility by making devotion to the brilliant development of China's equipment manufacturing industry. The acquisition of 40% equity interest in Ansaldo in Italy has bridged a technological gap of approximately 30 years between China's heavy gas turbine and international advanced enterprises; the acquisition of BAW company in Germany enables us to enter into aviation equipment manufacturing field; the acquisition of 19% equity interest in MANZ in Germany enables us to enter into the field of CIGS thin-film solar cell; the acquisition of CTU in Switzerland greatly improves the design and disposal capability of solid wastes and hazardous wastes.

In order to respond to “Made in China 2025”, we establish Shanghai Electric Automation Industrial Group in a timely manner and step up efforts in developing automation equipment product and technology; in order to tackle environmental and fog and haze crisis, we established Shanghai Electric Environmental Protection Group to vigorously develop businesses like new energy, garbage disposal, water treatment and air treatment; in order to deal with the issue of population aging, we actively devote ourselves to high-end medical equipment. We actively enrich and struggle for the “Electric Dream” for the realization of the “China Dream”, and we firmly believe that the “Dream” will eventually come true.

Deputy Secretary of the Party Committee  
Executive Director  
President



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About Us

Corporate Profile

Legal name of the Company in Chinese	上海電氣集團股份有限公司
Abbreviated legal name of the Company in Chinese	上海電氣
Legal name of the Company in English	About UsShanghai Electric Group Company Limited
Abbreviated legal name of the Company in English	Shanghai Electric
A share stock code	601727
H share stock code	02727
Registered address of the Company	30/F, Maxdo Center, No.8 Xingyi Road, Shanghai
Business address of the Company	No. 212 Qinjiang Road, Shanghai
Company website	www.shanghai-electric.com
Company email	service@shanghai-electric.com
Company telephone	+86 (0) 21 33261888
Company fax	+86 (0) 21 34695780

007

About Us

Social Contribution Value per Share for 2016 ( RMB )

Basic earnings per share	0.15
Add: tax contribution per share	0.30
Add: emolument contribution per share	0.49
Add: debt service contribution per share	0.04
Add: social donation per share	0.0004
Social contribution value per share	0.98

Key financial indicators for 2016 (Unit: RMB100 million)

Total assets	Revenue
1756.34	790.78
Net assets attributable to owners of the Company	Net profit attributable to owners of the Company
450.93	20.2





Responsibility Strategy

We possess a positive attitude of green manufacturing and manufacturing green products to focus on low carbon economy and vigorously develop new energy equipment, high efficiency and clean energy equipment and energy-saving equipment by centering on energy industry and encompassing the common topic of the whole human beings - “Energy Saving and Emission Reduction” .

Organizational Structure

Shanghai Electric Group Company Limited

- Strategic development department
- Industrial investment department
- Economic operation department
- Market development department
- Science and technology management department
- Board secretary's office／Investor relations department
- Human resource department
- Asset finance department
- Management and information department
- Audit office
- Legal department
- Administration office

Core Business

Shanghai Electric is one of the largest integrated equipment manufacturing groups in the PRC, whose business segments can be classified as high efficiency and clean energy equipment, new energy and environmental protection equipment, industrial equipment and modern services. And its products cover thermal power generation units, gas turbines, nuclear power equipment, wind power equipment, large and medium-sized electromotor, power transmission and distribution equipment, elevators, environmental protection equipment, machine tools and automation equipment.

Major Subsidiaries

Shanghai Electric Power Generation Equipment Co., Ltd.	Wujiang Transformer Co., Ltd
Shanghai Mechanical & Electrical Industry Co., Ltd.	Shanghai Blower Works Co., Ltd.
Shanghai Mitsubishi Elevator Co., Ltd.	Shanghai Electric International Economic & Trading Co., Ltd.
Shanghai Electric Wind Power Group Co., Ltd.	Shanghai Electric Import & Export Co., Ltd.
Shanghai Boiler Works, Ltd.	Shanghai Electric Gas Turbine Co., Ltd(上海電氣燃氣輪機有限公司)
Shanghai Electric Wind Energy Co., Ltd.	Shanghai No. 1 Machine Tool Works Co., Ltd.
Shanghai Electric Group Shanghai Electric Machinery Co., Ltd.	Shanghai Electric Leasing Co., Ltd.
Shanghai Electric Wind Energy Equipment Co., Ltd.	Shanghai Electric Milling Equipment Co., Ltd
Shanghai Turbine Works Co., Ltd.	Shanghai Electric Wind Power Yunnan Co., Ltd
Shanghai Electric Power T&D Engineering Co., Ltd	Shanghai Nanhua-Lanling Electric Co., Ltd.
Shanghai Electric Nuclear Power Equipment Co., Ltd.	Shanghai Institute of Mechanical & Electrical Engineering Co., Ltd
Shanghai Huapu Cable Co., Ltd	Shanghai Denso Fuel Injection Co. Ltd.
Shanghai Feihang Electric Wire and Cable Co., Ltd	Shanghai Najie Electrical Complete Sets Co., Ltd.
SEC Power Generation Environment Protection Engineering Co., Ltd.	Shanghai Machine Tool Works Ltd.
Renmin Electrical Apparatus Works of Shanghai Electric Group Co., Ltd	Shanghai Electric Hong Kong Co., Ltd.
Shanghai Electric Group Finance Co., Ltd	

010  
Focuses of 2016

Great Events

3.11

Huang Dinan, Secretary of the Party Committee, Chairman and CEO of Shanghai Electric, put forward in the two sessions that Shanghai Electric will no longer be proud of “Large and Inclusive”, but further highlight “Strong and Beautiful”, “Strong and Excellent” and “Strong and Special”.



3.15

16 products of Shanghai Electric, including but not limited to E and F class gas turbines and wind power generators, were awarded a title of “Shanghai Famous Brand”.

5.26

The 2016 Shanghai Electric Innovation Forum was opened.



6.12

Shanghai Exchange and Promotion Conference for Safe Production was held in Shanghai Electric with the presence of Zhou Bo, the deputy mayor.

6.15

The result of 2015 National Energy Efficiency Benchmarking Competition for Thermal Power Generation Units was announced. Compared to those of last year, the awarded units of Shanghai Electric were enhanced again, particularly, the 600MW ultra-supercritical units have obvious advantages.

7.13

The 600,000th elevator of Shanghai Mitsubishi was produced.



8.31

The New Wind Power Product Seminar of Shanghai Electric announced that “Shanghai Electric has successfully introduced Siemens' 6 MW offshore wind turbine”.

9.12

China's first “Double Ten” offshore wind power project (Rudong offshore wind power project) was put into commercial operation, which entirely used 4MW offshore wind power generators of Shanghai Electric.

11.3

EPR nuclear power steam generator of Shanghai Electric Nuclear Power Equipment Co., Ltd was awarded the gold prize of the 18th China International Industry Fair.



11.9

The major equipment of the first gas turbine order through cooperation between Shanghai Electric and Ansaldo in China was delivered.

11.10

China's first Djibouti turnkey project, constructed by Shanghai Electric, was completed.



011  
Focuses of 2016

Key Performance

Environmental Performance Indicators:

Environmental Performance Indicators	2014	2015	2016
Total investment in environmental protection (RMB10 thousand)	2,485	4,816	4,796
Energy consumption for unit output value (tons of standard coal equivalent/RMB10 thousand)	0.0339	0.0287	0.0288
Water consumption for unit output value (tons of water/RMB 10 thousand)	0.6183	0.6975	0.6795
Exhaust emission (10 thousand cubic meters)	303,036	178,572	203,100
Wastewater discharge (tons)	4,533,505	4,086,800	3,716,908
Slag discharge (tons)	6,330	5,903	5,558
Comprehensive utilization rate of the three wastes (%)	68.51	71.51	45.51
Greenhouse gas emission (tons)	72,623	68,764	71,172

Social Performance Indicators

Social Performance Indicators	2014	2015	2016
Total number of employees	29,261	27,310	29,293
Proportion with labor contract	100%	100%	100%
Proportion with social insurance coverage	100%	100%	100%
Proportion with trade union coverage	100%	100%	100%
Proportion of female management personnel	19.4%	19.6%	19.6%
Proportion with employee physical examination coverage	100%	100%	100%
Total investment in employee trainings (RMB10 thousand)	9,679	8,769	8,605
Proportion with employee training coverage	81.3%	99.8%	99.8%
Training time per capita (days)	3.48	3.5	3.5
Employee satisfaction	97.1%	97.4%	97.3%
Employee turnover rate	1.9%	2.1%	2.1%
Charitable donations (RMB10 thousand)	402.1	296.3	550.5

## Honors During the Year

### Shanghai Electric Was Listed on China's Top 500 Creditable Enterprises

On 15 April, List of 2015 China's Top 500 Creditable Enterprises was released and Shanghai Electric was on the list for long-term creditable operation and was admitted as “China's Top 100 Creditable Listed Companies” .

### Annual Top 100 in China Machinery Industry Was Released and Shanghai Electric Maintained the Third Place

On 26 May, List of 2015 Annual Top 100 in China Machinery Industry was released in Dongguan, and Shanghai Electric ranked the third.

### Shanghai Electric Was Listed on 2016 Top 100 “Global Challengers”

On 27 June, the latest report “Global Leaders, Challengers, and Winners: The Growth Engines of Emerging Markets” was released by The Boston Consulting Group in 2016 Summer Davos Forum, which announced the list of 2016 Top 100 “Global Challengers” and 28 Chinese enterprises including Shanghai Electric, CNPC, Tencent and Alibaba were on the list.

### Shanghai Electric Was Listed on Top 500 Innovative A Shares Listed Companies

In August, “Releasing of 2016 Innovation Index of Chinese A Shares Listed Companies and the First Innovation Leaders Forum of Chinese Listed Companies” was jointly held by Zijin Media Think Tank and Chinese Securities Journal in Nanjing. The conference released the first list of Domestic Top 500 Innovative A Shares Listed Companies. Shanghai Electric was listed on it by virtue of key evaluation indicators such as outstanding research and development ability, research and development investment, patent quantity and brand influence.

### Shanghai Electric Became the Benchmark of Safety Culture Establishment

On 12 November, in “Chinese and Foreign Corporate Culture 2016 Nanning Summit” held by China Research Institute of Enterprise Culture, Shanghai Electric was awarded the title of Benchmark Company of “Internet + Era” Safety Culture Establishment.

### Shanghai Electric's Ranking in Global Top 500 Energy Enterprises Moved Up

On 6 December, 2016 Global Top 500 New Energy Enterprises Release Ceremony and Energy Development Forum was held in Wuhan, which released the list of 2016 Global Top 500 New Energy Enterprises. Shanghai Electric ranked 72, 20 places higher than the place of 2015.

### Shanghai Electric Ranked First in Global Offshore Wind Power Installation

In the ranking of 2016 Global Offshore Wind Turbine Manufacturers, Shanghai Electric ranked first for new installation of 489MW.

### Other Honors:

Ranking first in the list of “Preferred Supplier Brand of China's Top 500 Real Estate”	Shanghai Mitsubishi Elevator Co., Ltd
Gold prize of the 18th China International Industry Fair	Shanghai Electric Nuclear Power Equipment Co., Ltd EPR nuclear power steam generator
First prize of Scientific and Technological Achievement in China's Machinery Manufacturing Process	Shanghai Electric Nuclear Power Equipment Co., Ltd Research on key technology for manufacturing AP 1000 nuclear power steam generator
First prize in Scientific and Technological Award of China Machinery Industry	Shanghai Electric Power Generation Equipment Co., Ltd Key technology and application of the reliability prediction of 1000MW power generation unit
Outstanding Scientific and Technological Achievement Award of Machinery Industry in “12th Five-Year Plan” of China Machinery Industry Federation	Shanghai Electric Power Generation Equipment Co., Ltd 1000MW nuclear power steam turbine





# 014

Chapter One Driving Strategic Development with our Mission

# 01

## Driving Strategic Development with our Mission

Creativity is not only the fundamental mission of manufacturing industry, but also the core competitiveness of manufacturing industry. Shanghai Electric is a large-scale equipment manufacturing group with a mission to create essential equipment for national welfare and the people's livelihood, and creativity is the soul of its continuous development.



# 015

Chapter One Driving Strategic Development with our Mission



The Picture Above

Huang Dinan, Secretary of the Party Committee, Chairman and CEO of Shanghai Electric, was a guest of "2016 Dialogue with Leading State-Owned Enterprises of Shanghai-style Ingenuity" (海派匠心2016对话国企领导).

## 1.1 Mission and Responsibility

**We carry forward our industry responsibilities and historical missions of the advanced equipment manufacturing industry, and bravely shoulder the responsibility to become the "Pillar of the Great China".**

### Mission of Industry Development

Shanghai Electric is a leading brand of China's industry. During the initial stage of new China, China's first 6000KW power generation unit, the world's first "dual internal water cooled" generator, China's first ten-thousand-ton hydraulic press and China's first set of nuclear power generation unit are all produced by Shanghai Electric. Since China's reform and opening up, Shanghai Electric has produced a large number of world-leading innovative products, such as the first 1000MW ultra-supercritical thermal power generation unit, the second generation plus and the third generation nuclear island main equipment and conventional island main equipment, large-scale offshore wind power equipment, high frequency electromotor for West to East Gas Transmission.

### Responsibility Shouldered

We create the best corporate value together with our shareholders, and promote the harmonious development of society together with the public. We work with our employees to ensure our happy working life. We stay true to the mission, and as a corporate citizen, contribute our wisdom and sweat to the great rejuvenation of the Chinese nation.

### ✓ Economic Responsibility

While being committed to our own sustainable development, we attach great importance to shareholders' reasonable return on investment, and focus on the stability and continuity of the return on investment. According to the Company Law of the People's Republic of China, the Securities Law of the People's Republic of China, Notice from the China Securities Regulatory Commission on Issues Relating to Further Implementation of Cash Dividends by Listed Companies(《關於進一步落實上市公司現金分紅有關事項的通知》), Regulatory Guideline No. 3 for Listed Companies - Cash Dividend Distribution by Listed Companies(《上市公司監管指引第三號—上市公司現金分紅》) and Guidelines for the Cash Dividend Distribution of SSE-Listed Companies(《上海證券交易所上市公司現金分紅指引》) and other relevant laws and regulations as well as the Articles of Association of Shanghai Electric Group Company Limited, we give priority to the distribution of dividends by cash, and clearly stipulate the ratio of dividend distribution, that is, the accumulated profit distribution by cash in the past three years cannot be less than 30% of the annual average profit available for distribution in the last three years. Since the listing from 2005, the cumulative dividends distributed to shareholders by us has exceeded RMB8.5 billion.

### ✓ Social Responsibility

We are firmly convinced that, only the enhancement of the consensus and communication in social responsibility, implantation of social notion of responsibility into our strategic development goals and the implementation of the same in the enterprise's daily operation management and innovative activities, can we create an excellent organization which is well-received and respected by society, and can we achieve the harmonious and coordinative development of the economic and social environment. At the same time, we pay attention to the protection of employees' various rights and interests and fully perform our responsibilities to employees in terms of system construction, system guarantee and full implementation.

### ✓ Political Responsibility

To do well the business we are good at is the responsibility of Shanghai Electric to the state. We actively optimize the asset structure and operational efficiency, and effectively promote the improvement of state-owned capital's quality and efficiency. Under the new economic normal, and facing new situations and problems, we focus on emancipating the mind, deepening the reform, stimulating enterprise's operating vitality, promoting the sustainable development and structural adjustment of the enterprise and strengthening the operation management and control, so as to win a tough fight for turning losses into profits and promote the innovation and upgrading in equipment manufacturing and related segments. We are determined to become a leader of global equipment manufacturing industry by actively practicing and participating in the national initiative of "One Belt, One Road", and leveraging on the strategic measure of "Go Global", thereby delivering a satisfactory performance to the nation and ourselves.



Dare to Play

We conduct an in-depth implementation of innovation-driven strategy development, strengthen the dominant position of enterprise innovation and fully stimulate the innovation potential in each aspect for comprehensive innovation and for the courage to play.

Transformation and Development

We consider cultivating a multi-national group with international competitiveness and brand influence as a strategic goal, and thus keep abreast of the times, pursue independent innovation, and constantly promote a new round of transformation breakthrough for the Group. Facing a softer growth in current economy, the demand saturation and overcapacity in China's equipment manufacturing industry and the increasingly fierce competition within the industry and other difficult situations, we focus on the theme of "Innovation and Development" and take the initiative to adapt to changes in the market environment via challenging the difficulties ahead and taking active actions, and meticulously carry out technology accumulation and innovation integration to promote industrialization of high and new technology and high-end manufacturing in an attempt to achieve the industrial transformation and upgrading and core competitiveness enhancement. We put forward the innovative transformations from "Large Bases, Large Plants, Heavy Equipment " to "Technology-intensive and Asset-Light", from the "High-carbon Product" to "Low-carbon Product", from "Machine Being Stronger than Electricity" to "Automation and intelligentization", from "Domestic Vision" to "Global Vision", from "Single Equipment Manufacturing" to "Combination of Manufacturing and Service ".

Preserve the Main Business

We adhered to the industrial development path mainly based on the modern equipment manufacturing industry. Centered on the "3+2" industry, we keep move ahead in scientific innovation, personnel training and business management, and continuously improve our industrial level and our competitiveness and profitability. We preserve the main business and help the industry grow stronger without impetuosity and frivolity but with refined willpower and deeper connotation, make the economic development be built firmly on the solid rock of real economy, and develop deeply and fully the market that we adhere to and preserve, while keeping focus on innovation, changing with the trend, exploiting the market, cultivating new economic growth driver, expanding management coverage pursuant to the concept of "One Company" and the principle of efficiency above all else.

"Spirit of Ingenuity"

We inject the "Spirit of Ingenuity" into our blood, and strive for ongoing excellence in every work. We take extensive quality enhancement actions, strengthen all-around quality management, and improve the quality competition mechanism of survival of the fittest. Quality is born from ingenuity. We regarded Li Bin as a typical craftsman, and conduct great discussions about "Li Bin's Spirit" to vigorously promote spirit of ingenuity, foster ingenious culture, fulfill occupational ethics, advocate the pursue for perfection, actively create an ecological environment that is conducive to the promotion of the "Spirit of Ingenuity". Furthermore, we strengthen the organization and guidance as well as training and talent construction, and provide incentive mechanisms to ensure a great number of "electric craftsmen" and more "electric brands" that enjoy international reputation for the purpose of making the development of Shanghai Electric move into an era of quality.

1.2 Strategic Management

**Upholding the feelings of "Think of the Tree When You Eat the Fruit, Think of the Source When You Drink the Water." and pursuing a dream of "Create Our Future Together", we adhere to development concepts of innovation, coordination, green, openness and sharing, and paint a new blueprint and write a new chapter for Shanghai Electric with tens of thousands of employees.**

Strategic Objectives

We develop Shanghai Electric into a multinational group with global presence and operations, international competitiveness and brand influence by adhering to the customer value-oriented concept and the innovation and development theme to provide China and the world with more efficient, more environmental friendly and more economical energy and industrial equipment as well as complete solutions.

Strategic Positioning

We actively adapt to economic development under the new normal phase, press ahead development with a direction towards high-end technology, asset-light business structure, intelligent products, group level centralized management and controls and hierarchy-reduced operation structure with a theme of innovation and development, and seek new breakthroughs mainly in five aspects, being "high recognition of technology but less recognition of assets, development of dominant industries, cultivation of new industries, group level centralized management and controls, and reform". We enhance the quality of assets, maintain the Company in healthy conditions and improve our competitiveness and profitability. We implement the spirit of reform in state-owned assets and enterprises, and attain periodic achievements in relation to the overall listing works of the parent group based on the "Two Steps" plan; we deepen the supply-side structural reform, focus on bottleneck conflicts and problems in the reform and development of enterprise, and seriously and firmly carry out the works of "Improving Weak links"; we promote the implementation in full of group level centralized management and controls in accordance with the concept of "One Company".



The Picture on the Right  
Li Bin's Workshop





Strategic Measures

Given the severe internal and external situation, we maintain the strategic focus, further deepen the implementation of various works in respect of "One Theme and Five Development Directions", and actively promote the industrial structural adjustment, as well as exploring new increments and new momentum, while further improve weak links and compete for advantages in order to adapt better to market competition.

The picture below  
Li Jing, our Chief Information Officer, entered into a corporate service center agreement with Accenture on behalf of Shanghai Electric



Development of Group Level Centralized Management and Controls

According to the concept of "One Company", we push forward in full swing the group level centralized management and controls as well as the hierarchy-reduced operation structure. We insist on laying a solid foundation for our headquarter and strengthening our industrial group by further optimizing the group industry division, further rationalizing the group management level, further enhancing the group management standardization and the functional management normalization and professionalism, as well as further optimizing the organizational structure setting. The development advantages as a whole are achieved by leveraging on effective synergy from each business segment and full consolidation of internal resources together with enhanced efficiency in organization and operation.

Increment of Structural Adjustment

We place our focus mainly on product and industrialization and creation of new competitive advantages for enterprises, while actively have a layout for industries with development potential and increase our development efforts. According to the objective disciplines of industrial development, we conduct a structural adjustment. We are soberly aware that the advance and retreat of the industry must follow the disciplines of the market and industry. The industries incompatible with development requirements and of no profitability shall be decisively withdrawn. We straighten out the industrial chain based on the requirements of asset-light business structure. With the management consultancy received from Accenture, we constantly rationalize the ownership structure and industry chain to design an overall management and control program for the Group. We speed up the restructuring and upgrading in accordance with a model of "Internal R&D and Sales, Outsourcing Production and Processing". We make great efforts to achieving the reform budget goals without any waiting, dependence and delay.

Pull Up the Benchmark and Improve the Weak Links

To improve weak links is a critical strategy for us to promote the "3+3" planning and the "13th Five-year Plan". The economic operation is facing unprecedented difficulties and pressures due to increased downside pressure of domestic economy, slowed market growth, slackening traditional industries, limitation on total number of emerging industries nurtured primarily, and unsound links as well as unimproved weak links, which resulted in the declining development quality. Under this grim situation, we take up special initiatives to improve the weak links, requiring the profound understanding of the significance of such work by each industry segment and the business line, effectively enhancing the sense of responsibility and urgency, and making clear the main tasks and requirements for improving the weak links, in order to pull up the benchmark and improve the weak links, and to speed up the power conversion and the transformation into a quality and benefit oriented development mode.

1.3 Science and Technology Innovation

To further implement the object of transforming “Made in China” to “Created by China” , we maintain the investment in scientific and technological researches and take full advantage of the strength of Shanghai Electric Academician Research Office (上海电气院士工作室) and Post-doctoral Research Station (博士后工作站) to build an independent innovation system through original innovation, integrated innovation and bringing-in-digestion-absorption re-innovation. On the other hand, we also strengthen the system innovation and mechanism innovation following the requirements to listed companies, which together to develop a virtuous development mechanism of development, value adding and social return.

Leading technology

We adhere to the direction of high-end technology. By following the policy of driven by innovation and developing through transformation, seizing the opportunities from new energy reformation and focusing on three main domains, i.e. energy equipment, industrial equipment and integrated service, we transform our technology advantage into economic advantage eventually.

Release New Fifteen-year Science and Technology Plan

Under the general guideline of “One Theme, Five Development Directions” and by referring to the general technological development trend at home and abroad, the general requirement for construction of Shanghai Science and Technology Innovation Center, the 3+3 strategic plan of the Group, the technology development progress of each domain of the Group as well as the product plan and investment budget in science and technology, the latest Shanghai Electric Fifteen-year Science and Technology Development Plan as a map designed from the superior level of the Group for science and technology development provides a clear plan for Shanghai Electric's medium to long-term development in science and technology development and identifies its four main fields, i.e. power generation equipment, power transmission and distribution, industrial equipment and intelligent manufacture, forward-looking technology and application, which involve 18 key fields including high efficiency and clean coal-fired power generation, gas turbine, nuclear power, primary equipment for intelligent power transmission and distribution, intelligent industrial equipment, advanced materials application and so on. To guarantee the implementation of this plan, the Group will track and inspect the significant scientific research projects of the industrial departments and the corporate based on consolidation on the science and technology decisions supporting system and guide and help the corporate to become part of the development strategy of the Group as soon as possible.

Four Main Domains of Fifteen-year Science and Technology Development

01 Power generation equipment	02 Power transmission and distribution	03 Industrial equipment and intelligent manufacture	04 Forward-looking technology and application
<ul style="list-style-type: none"><li>  High efficiency and clean coal-fired power generation</li><li>  Gas turbine</li><li>  Wind power</li><li>  Solar thermal power</li><li>  Nuclear power design</li><li>  Nuclear power equipment</li></ul>	<ul style="list-style-type: none"><li>  Primary equipment for intelligent power transmission and distribution</li><li>  Electric power automation</li><li>  Power electronics</li><li>  Distributed energy system</li><li>  Energy storage</li></ul>	<ul style="list-style-type: none"><li>  Intelligent fundamental parts</li><li>  Intelligent industrial equipment</li><li>  Intelligent system</li><li>  Environment-friendly and automation system</li></ul>	<ul style="list-style-type: none"><li>  Advanced materials application</li><li>  Advanced design, simulation</li></ul>



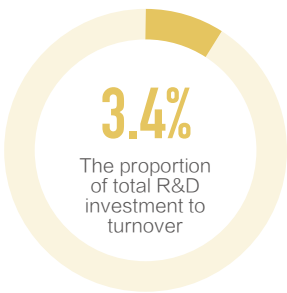
020

Chapter One Driving Strategic Development with our Mission

Technology Research Investment in 2016

Total technology research investment

2.684 billion



The number of R&D staffs of the Company

2775



Release 2017 R&D Plan of New Product

2017 R&D plan of new product includes two blocks, i.e. reformation and improvement of product R&D and new product R&D, which cover thirteen industrial departments and enterprises directly under the Group with 421 new products in research. The 2017 R&D plan of new product made amendment and improvement in preparation and management based on the 2016 new product plan to further improve the rationality of product plan, including quantity and quality matching, adding product type-spectrum of each industrial departments, putting forward the key points of technology enhancement of new product in different fields, detailing relevant quantitative indicator relating to new products and so on. The preparation and amendment to the R&D plan of new product, as one of the guidance to implement 3+3 industry plan and fifteen-year technology plan of the Group, matches with scientific research budget and lead the technological investment into the breakthrough of key science and technology projects and transform the technology output to finished product so as to commercialize new technologies increasingly, further achieve industrialization and transforming the technology advantage to economic advantage eventually.



Accumulated Patents in 2016

In 2016, we applied for **677** patents, among which entitled **511**, and we were in possession of **3508** effective patents, **378** software copyrights, held or participated in formulating **303** various industrial and national standards.

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Chapter One Driving Strategic Development with our Mission

China Machinery Industry Science and Technology Awards in 2016

Number	Name of awarded projects	Awarded unit	Award Grade
1	Key technology and application in reliability projection of 1000 MW power generation units	Shanghai Electric Power Generation Equipment Co., Ltd.	First Class Award
2	Application of welding rotor technology route in 1000MW ultra supercritical steam turbine	Shanghai Electric Power Generation Equipment Co., Ltd.	Second Class Award
3	620℃ high-efficiency ultra supercritical 660MW four-cylinder and four-round exhausting condensing steam turbine	Shanghai Electric Power Generation Equipment Co., Ltd.	Second Class Award
4	Serialization research and manufacture of F-level sole type adjustable exhausting steam turbine units	Shanghai Electric Power Generation Equipment Co., Ltd.	Second Class Award
5	Research and manufacture of AP1000 nuclear power steam generators	Shanghai Electric Nuclear Power Equipment Co., Ltd.	Second Class Award
6	Nuclear main pump full flow test bed project	SEC-KSB Nuclear Pumps &Valves Co., Ltd.	Second Class Award
7	Development and application of field restoring technology on damage of tube plate and the sealing of nuclear power plant steam generators	Shanghai Electric Nuclear Power Equipment Co., Ltd	Second Class Award
8	Design and manufacture technology of large-scale power generation stator coil assemble modularization	Shanghai Electric Power Generation Equipment Co., Ltd.	Third Class Award

Shanghai Science and Technology Awards for the year 2015 (released in April 2016)

Number	Name of awarded projects	Awarded units	Award Grade
1	Development and application of key equipment of single nozzle cold wall coal pressurized gasification technology	Shanghai Boiler Works, Ltd.	Outstanding Technological Invention Award
2	Research and manufacture of 1000MW nuclear power reactor pressure vessel	Shanghai Electric Nuclear Power Equipment Co., Ltd	Science and Technology Progress Award, Second Class Award

Technology Advancement

We have made various achievements in the field of technological innovation in 2016

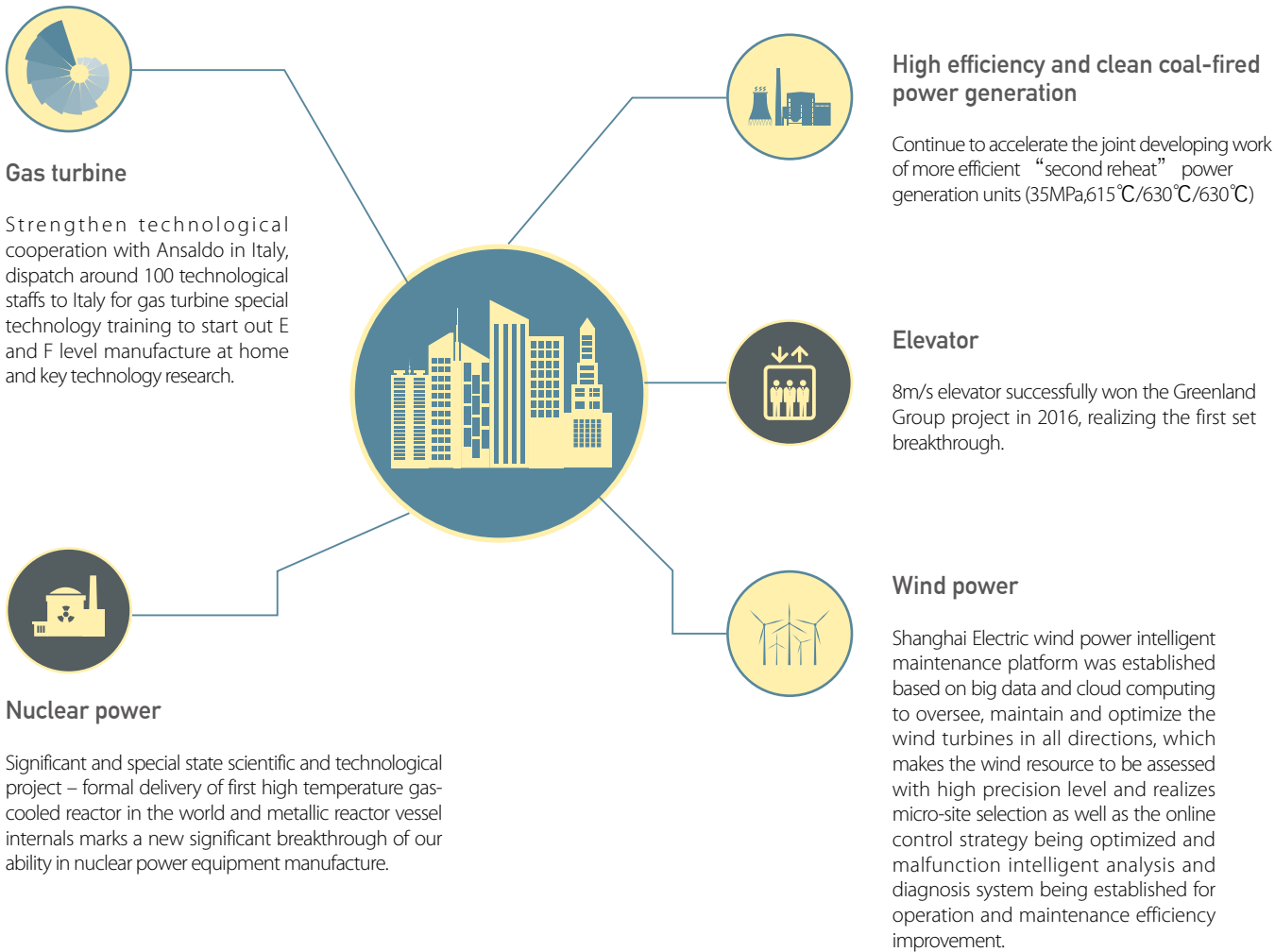
National Scientific and Technological Progress Awards in 2016

Number	Name of awarded projects	Awarded units of the Company	Award Grade
1	Key technologies and construction application of 250MW Integrated Gasification Combined Cycle power generation	Shanghai Boiler Works, Ltd.	Second Class Award
2	Set of exclusive controlling equipment and system with high safety level	Shanghai Electric Group Company Limited Shanghai Mitsubishi Elevator Co., Ltd.	Second Class Award



Scientific Research Outputs

By targeting at the leading technologies and information in global equipment manufacture and taking setting worldwide standard and establishing global insight as a breakthrough, we make every effort for the wider use of Made in China in the whole world in the process of developing proprietary core technology and manufacturing high-end product at home so as to serve more clients and improve our core competitiveness.



Picture above  
The field installation picture of 2000t/d full heat recovery powder coal pressurized gasifier.  
Picture below  
Ultra supercritical second reheat power generation equipment products

Shanghai 250MW Integrated Gasification Combined Cycle technology was awarded National Science and Technology Progress Award

Key Technology of 250 MW Integrated Gasification Combined Cycle Power Generation and Application in Engineering project was awarded National Science and Technology Progress Award, Second Class Award. This project was completed by Shanghai Boiler Works Ltd. and China Huaneng Group, which is also the first national science and technology award of Shanghai Boiler Works Ltd. as well as an important milestone in its chemical equipment products development history. The Key Technology of 250 MW Integrated Gasification Combined Cycle Power Generation and Application in Engineering was applied in Huaneng green coal-fired power generation Tianjin IGCC power station project, which is a demonstration project of applying Integrated Gasification Combined Cycle Power Generation first launched out in China by Shanghai Boiler Works Ltd. and Huaneng Group. Shanghai Boiler Works Ltd. is mainly responsible for the detailed design of internal components of gasifier and the manufacture and assembling of gasifier equipment, which is also the first set of 2000t/d full heat recovery powder coal pressurized gasifier with proprietary intellectual property rights at home.

Ultra supercritical second reheat power generation equipment products

The second reheat power generation equipment units (No.3 unit) of Guodian Taizhou have been working well for over four months since its commissioning with each index meeting the designed requirement among which, the coal consumption of power generation is only 256.86g/kWh, 5.34g lower than the best current level in the world and 14g lower than the average level of domestic regular 1000MW power generation units and emission concentration of air pollutants is lower than the emission limits of gas turbine, representing the most leading clean thermal power technology in the world currently and advancing the clean and high-efficiency process of domestic coal-fired power generation. The steam turbine in the project is the first domestic ultra supercritical second reheat steam turbine with the biggest sole unit capacity in the world.



✔ Rehabilitation Robot commencing clinical experiment

NaturalGait, a legs rehabilitation robot researched and developed independently by Central Research Institute(中央研究院), is currently conducting a several-month's demonstrative application and clinical experiment in the Second Hospital of Jiaxing City, Zhejiang Province (浙江省嘉兴市第二醫院). It was another significant progress of this robot after its successfully showing up last year in the Seventeenth CIIF(中國工博會). NaturalGait is designed mainly for those with walking troubles because of hemiplegia or paralysis and is used in adaptive and rehabilitative training due to a variety of neural system diseases like brain trauma and spinal injury, bone articular diseases as well as prosthesis and orthosis wearing. Facing with over 10 patients with different degree of lower limbs disability in the rehabilitation department of this hospital, NaturalGait can provide different training models like fixed speed, flexible, anti-resistances. The functions of real-time parameters display and data storage facilitate the physiotherapist to conduct comparison and analysis on the later stage clinical experimental efficiency. The project team will further optimize the functionality of the robot later and complete the product registration of category 2 medical device of this equipment to achieve technological innovation commercialization as soon as possible.

✔ Informatization supporting intelligent manufacture

Electric Power Equipment (Thermal Power, Nuclear Power) Large-scale Turbine Generator Intelligent Plant, (《電力裝備(火電、核電)大型汽輪發電機智能工廠》), the first batch of intelligent manufacture special project of MIIT (國家工信部), was undertook by Shanghai power generation plant. Under the direction of serialization and modularization, the project carried out secondary development and capsulation to construct multi-level design system to build a digital platform supported by the big database where the information flow from various systems being integrated, shared and managed gradually, which eventually lead to the full-digitalization design and digital management throughout its whole life of power generators. The project also upgrade and improve the intelligent equipment to realize intelligent manufacture and inspection and to accomplish module integration and pilot run by obtaining data through ERP system access so as to accomplish information-based management hinged on ERP eventually. It is expected to achieve the following comprehensive efficiency index by implementing this project: 20% decrease in operating cost of plant; 20% reduction in research and manufacture cycle of the power generation products; 20% increase in efficiency for manufacture of power generators; 10% decrease in defective products proportion; 4% increase in energy utilizing rate.

Picture below

Rehabilitation robot in clinical experiment



1.4 Governance Structure as an Assurance

We establish improved modern company governing structure and through making continuous effort in reforming management mechanism, strengthening internal control, risk management and anti-corruption and pro-honesty as well as optimizing the governing mechanism of “well-defined power and duty, well-established system, duty-performing on each case, efficient balancing” the Company has been improving its governing ability.

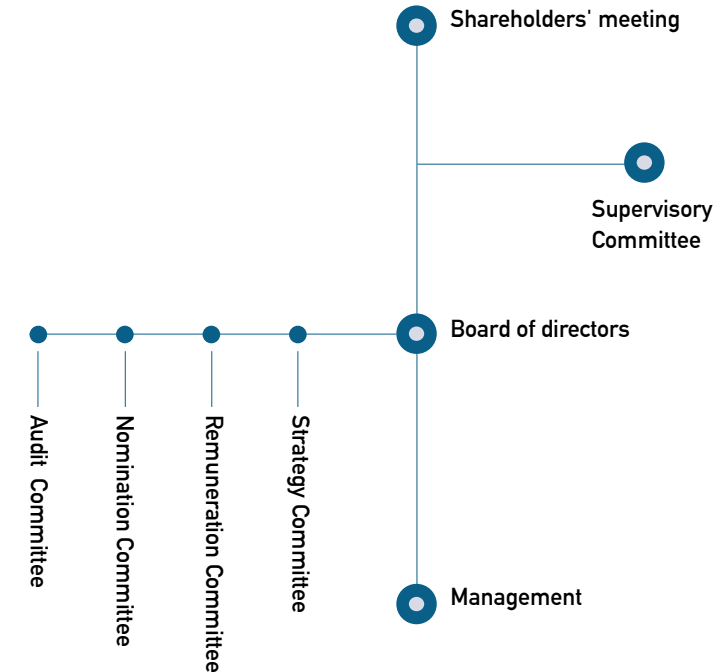
Regulatory Governing

Being honest and trustworthy is the foundation of our business as well as the inexhaustible motive force for our continuous development and strengthening market competitiveness. We keep improving the system building, strictly comply with the law, regulations and industrial standards in the course of production and operation, and strictly abide by business ethics. We commit to govern the Company by the law and operate with good faith.

Strategy committee (mainly responsible for considering and advising on long-run development plan and significant investment of the Company) + nomination committee (mainly responsible for regularly reviewing the board structure, the election criteria and processes for nomination of directors, supervisors and other senior managements and advising hereon) + audit committee (mainly responsible for examining and monitoring the risk management system, financial reporting process and internal control process of the Company) + remuneration committee (mainly responsible for considering and examining the remuneration of directors, supervisors and senior management members)

Shanghai Electric sticks to improving the governing structure of the corporate and perfecting the modern corporate system according to the requirements of Company Law, Securities Law and Code of Corporate Governance for Listed Companies. Controlling shareholders exercise their rights strictly according to the requirements of law and company system while independent directors have been performing their duties from the view point of independent third parties with due diligence and the board delegates authority to management effectively on full trust and maintain tracking and assessing the progress of significant projects. The minority shareholders' interests are duly considered and protected when connected contractions between the Company and controlling shareholder took place and so on.

Directors, supervisors and senior management members of the Company strictly perform their duties on information disclosure to the public with due diligence and fidelity in accordance with the requirements of relevant laws and regulations, company articles of association and administrative measures for information disclosure and make sure the disclosure true, accurate, complete, timely and fair. Directors, supervisors, senior management members of the Company comply with the disclosure principles of fairness consciously, actively participate in the subsequent trainings organized by supervising department to understand the latest supervisory requirements, act with due diligence and review relevant matters for decision and express opinions clearly, pay close attention to the news on the Company from public media, which provide effective support to the secretary to the board, keep examining the information disclosure documents published in designated media by the Company, thus offer effective guidance and constructive suggestions and opinions for the Company's daily information disclosure work. Directors, supervisors, senior management members of the Company are all with strong awareness of honesty and compliance, due diligence and innovation and development.





General Meeting

The General Meeting is the highest authority of Shanghai Electric. General meeting of the Company effectively protects the right to information, right of speech, right of inquiry and right of voting of the shareholders. In 2016, the Company held one annual general meeting and two extraordinary general meetings.

Board of Directors

The Board of directors of Shanghai Electric currently comprises 8 members, including 3 independent non-executive directors, 3 executive directors and 2 non-executive directors, among which one being a female director. Members of the Board have extensive working experience in various professional fields. The Board makes decisions on the significant strategies and

performs its decision function. The Board has made important contributions to the aspects of strategic direction, remuneration evaluation, risks management and so on. Meanwhile, the Board also focuses and oversees the work performance on environmental protection and social responsibility. In 2016, the Company totally held 14 Board meetings with vote casted at site and by means of communication, and considered 73 proposed resolutions at the meeting.

Supervisory Committee

The Supervisory Committee is responsible to shareholders by monitoring the operation, financial position of the Company and the discharge of the duties of the directors and senior management as well as providing advices. The Supervisory Committee comprises 4 supervisors, including one staff representative supervisor. In 2016, the Company held 9 supervisory committee meetings.

The picture below  
The 2nd Extraordinary General Meeting in 2016



Internal Control

With the improvement of internal control system, we monitor the standardized operation of enterprises at different levels, setting up internal control mechanism featuring checks and balances so as to continuously enhance the internal control system, studying trends of risk and preventing operating risks. Risk management system is initially established in three aspects, namely the establishment of a system of organizational structures, the establishment of a system of standards as well as the promotion of practical operation, in order to push forward risk management works comprehensively. To begin with the compilation of customized internal control manual of the enterprises and self-assessment of the effectiveness of internal control, we will promote the completion of internal control manual in phases and enhance self-assessment works effectively. We have released 27 systems and processes covering audit plan, internal control management, risk management, economic responsibilities audit, investment audit, special projects audit, audit achievements application and management over intermediary institutions and so forth. We conducted innovation in internal control thoughts and methods through four initiatives, namely creatively promote and implement guidance to develop the self-regulatory capability of the enterprises; intervene in advance to comprehensively regulate high-risks businesses; cultivate the capability to continuously increase the ratio of self-audit; operate online to gradually enhance the audit informatisation level.

In 2016, by finding and solving problems through the systematic conduction of audit regulation, we have gradually improved the capabilities of self-management and self-improvement of the subject enterprises.



1 Initially Establish Risk Management System and Comprehensively Promote Risk Management Works

Shanghai Electric has taken the lead in promoting risk management works and initially established regularized and effective risk management system in order to enhance its capabilities of risk identification, prevention and handling so as to facilitate the smooth and sound running of the Company.

Establishment of a system of organizational structures:  
Having set up the risk management steering team and risk management working team of the Group as the organizational promotion, overseeing and evaluation institutions in respect of the risk management works.

Establishment of a system of standards:  
Having released and implemented DOC 752 Risk Management (《DOC 752風險管理》) and PRO 753 Risk Management Implementation and Report (《PRO 753風險管理實施與報告》) and compiled the Risk Management Manual for guiding the subject enterprises to conduct practical operation.

Promotion of practical operation:  
Organizing and convening meetings relating to risk management, promoting and implementing practical operation training as well as guiding the subject enterprises to conduct practical operation.

Promoting the Compilation of Internal Control Manual in Phases and Enhancing Self-assessment Works Effectively

Compilation of customized internal control manual of the enterprises:  
Continuously facilitate the compilation of internal control manual of the enterprises with a designated person delegated to regularly track and assess the compilation work. By the end of 2016, cumulatively 72 enterprises have finished the compilation work of internal control manuals.

Self-assessment of the effectiveness of internal control:  
Organize inspection team to conduct self-assessment of the design and implementation of the internal control system of 27 enterprises.



Integrity and Self-discipline

We will fully implement the requirements of strict management of the party and the enterprises, adhere to the stringent and clear political disciplines and political rules, strengthen the construction of discipline, to work with center focused on the production operation and reform and development, strictly perform the main responsibility of the party committee and the overseeing responsibility of disciplinary committee, consistently enforce “The Eight Rules of Political Bureau of the Central Committee” , strengthen the supervision on discipline enforcement and accountability, practically promote the construction of the party conduct and combat corruption and advocate integrity, strongly secure the sustainable and healthy development of the Company.

In order to regulate the treatment of the non-compliances and disciplinary offences of staffs in Shanghai Electric, we have developed Administrative Measures of Rewards and Penalties for Staffs in Shanghai Electric ( 上海電氣員工獎懲管理辦法 ) in accordance with the laws and regulations such as the Company Law, the Trade Union Law and the Labor Law as well as systems such as Measures on Implementing Provisions for Incorruptible Employment of Leading Cadres in State-owned Enterprises ( 《 國有企業領導人員廉潔從業若干規定 》 ) and Trial Measures on Accountability of Shanghai Electric Leaders at Various Levels on Material Matters ( 《 上海電氣各級領導人員重大事項問責試行辦法 》 ) and so on. For staffs with non-compliances and disciplinary offences, they shall be punished in accordance with such measures; for any other provisions of the country and higher authorities, we will comply with such requirements; for staffs being members of the Communist Party of China, they shall be punished in accordance with the Regulations on Disciplinary Actions of the Communist Party of China ( 《 中國共產黨紀律處分條例 》 ); for staffs who were suspected of breaching the law or involved in crimes, they shall be handed over to the judicial authorities for treatment.

The picture below  
The Mobilization Meeting themed “Studies on the Theoretical and Practical Issues of Party Building” on Leaders of Shanghai Electric



Comprehensively Perform the Main Responsibility of the Party Committee

The convening of reinforcing party discipline meetings emphasizes that political parties at various levels shall practically preform their main responsibilities of the construction of reinforcing party discipline, taking disciplines and rules as the priority, strengthen the implementation of the punishment of non-compliances and disciplinary offences and accountability system, strengthen efforts in the adjustment and correction of problems discovered, making the main responsibility more definite in strict management of the party, measures on combat corruption developed more pragmatically and specifically and requirements on communists cadres more strictly. We have strengthened the education on party disciplines and rules with education activities themed “studies on the theoretical and practical issues of party building” , organized enterprises at various levels to study Rules on Integrity and Self-discipline of the Communist Party of China ( 《 中國共產黨廉潔自律準則 》 ) ( “the Rules” ) and Regulation of the Communist Party of China on Disciplinary Actions ( 《 中國共產黨紀律處分條例 》 ) ( “the Regulation” ) from a multi-faceted and multi-channeled point of view, take the Rules and the Regulation as important point in implementing the comprehensive requirements on strict management of the party and regard strengthening the construction of six disciplines as key issue in implementing main responsibility and overseeing responsibilities. We have taken “Explore the Operation Mode of Main Responsibility Implemented by the Disciplinary Committee in Reinforcing Party Discipline Works” as the first theme of the disciplinary committee over the year and developed Rules on Shanghai Electric's Implementation of Responsibility System of Reinforcing Party Discipline ( 《 上海電氣關於落實黨建黨風責任制實施辦法 》 ) in the meantime. We have strengthened the warning education, compiled and released Keep In Mind—Selected Collection of Warning Cases of Six Disciplines of the Party ( 《 警鐘長鳴——黨的六大紀律警示案例選編 》 ) , organized over 1200 leaders and staff members in key positions to watch the warning video “The Alarm in State-owned Enterprises Sounded” .

Actively Implementing Discipline and Overseeing Functions

We actively promote a balanced consideration of honest risks and business risks, insisting the participation at the beginning, so as to play a supportive, promotive and assistant role of the honest construction in strengthening risks prevention and management. We actively perfect the measures on system risk prevention and enhance holiday reminders, and make requests and reminders to the basic enterprises through study materials, network, combat corruption wechat and so on, to avoid the non-compliances and disciplinary offences and ensure the thorough implementation of the spirit of the “Eight Rules of Political Bureau of the Central Committee” in system of Shanghai Electric. By considering the actual situation of works, we developed Interim Provisions on Informing Typical Non-compliances and Disciplinary Offences ( 《 關於對違規違紀違法典型問題實行通報的暫行規定 》 ) to inform the typical non-compliances and disciplinary offences, enhancing deterrent value and pressure transmission. We actively make use of the “four forms” of implementation and oversee and establish a sound consultation system of secretary of the discipline inspection commission to that of next level units, conduct encouragement talks with the secretaries of party committee and secretaries of the discipline inspection commission who conduct featured and effective implementation on “two-responsibilities” and disciplinary inspection works, conduct reminding or admonishment interviews with those who failed to carry out the aforesaid works. And we conduct enquiries by letters or interviews seriously with those reported by complaint letters; punish the responsible persons according to the disciplines and laws; deal with the problems identified in complaint letters, cases and special-purpose inspection based on different situations, and take in-depth accountability as the key method of “two responsibilities” , effectively maintaining the seriousness of party disciplines.

Implementing Inspection and Rectification in a Serious Manner

In the light of the rectification referred in the inspection report prepared by the forth inspection team of municipal committee and the clues transferred, the disciplinary committee actively assisted the party committee to develop work plans, conducted investigation and verification, urged the implementation of rectification, and ensured no omission or negligence in rectification. As to the rectification referred in the inspection report, serious implementation and clear responsibilities shall be conducted and completely solved. For the clues transferred in letters, serious study, judgment, verification, timely treatment and full implementation shall be conducted. In addition, for the works and work style problems reflected in inspection, we shall draw inferences about other cases and take adjustment and correction as an opportunity, analyze the reasons in depth and strengthen precautions.

Reinforcing the Special-purpose Work Inspection

We seriously and fully implement the “Eight Rules of Political Bureau of the Central Committee” guideline and enforce “manage the next level and inspect the next two levels” to actively conduct special-purpose inspection. The results of the special-purpose inspection show that the awareness and execution of “The Eight Rules of Political Bureau of the Central Committee” and “two main responsibilities” and compliance with six disciplines by the Group's subordinate entities are constantly improving and we have basically complied with orders and preventions. As to individual problems identified during the inspection, strict adjustments and corrections shall be urged and non-compliances shall be timely rectified or punished; for general problems, we shall study one by one and make targeted improvement recommendations.

## 030

Chapter Two Creating Harmonious Development with Value

# 02

## Creating Harmonious Development with Value

We insist in innovation and development to create values for the industry; we focus on generating profits to create values for shareholders; we attentively produce elaborate products to create values for customers; we cherish every cooperation opportunity to create values for partners.

## 031

Chapter Two Creating Harmonious Development with Value

### 2.1 Industry Value

**As one of the leading enterprises in China's machinery industry, we have always spared no efforts to make our own contributions to the sound and sustainable development of the industry.**

#### Huang Dinan Elected as a Leader in “Smart Manufacturing”

Magazine Xiaokang (《小康》雜誌) released the list of 2015 Industry Wealth and Wisdom leaders, in which Huang Dinan, the secretary of the party committee and chairman of Shanghai Electric was elected as one of the leaders in industry wealth and wisdom (smart manufacturing) in 2015. These 2015 China Wealth and Wisdom Leaders are from 16 fields including smart manufacturing, new materials, medical and health, ecological-environmental protection, internet recreation, internet finance, and internet+ services, etc. The number of leaders in each industry wealth and wisdom in each year are about 3 to 8, making a total of 92 leaders, among which 6 are from smart manufacturing. As a representative in the field of manufacturing industry, the election of Huang Dinan embodied that the manufacturing industry in China has gradually adapted to the international rules and is becoming increasingly stable in reaching out to the world, and it also indicated the great expectations of the country in revitalising the machinery manufacturing industry and the leadership of Shanghai Electric in the manufacturing industry.





## 032

Chapter Two Creating Harmonious Development with Value

### Rating A! Same rating level offered by three major international organizations

Moody's Investors Service Hong Kong Limited recently issued a rating outlook - "stable" towards Shanghai Electric, together with A rated by Standard & Poor's and Fitch in the previous annual inspection assessment, the three major international rating agencies all rated Shanghai Electric "A". In accordance with the international practice, the three major international rating agencies conducted annual inspection assessment to Shanghai Electric in 2016, and Standard& Poor's and Fitch maintained their A/A international rating to Shanghai Electric, both stable. Two major rating agencies considered that the business of Shanghai Electric is stable and its operation and growth is healthy.

### The participation in the preparation of national wind power engineering specification

The Code for Construction and Acceptance of Wind Power Project(風力發電工程施工與驗收規範), jointly prepared by Shanghai Electric Wind Power Group Co., Ltd. and China Longyuan Power Group, Shenzhen University, Hydrochina Huadong Engineering Corporation Limited and Beijing Engineering Corporation Limited, Yangtze New Energy Development Co., Ltd., Wuhan University, Sinohydro Bureau 7 Co., Ltd, China Gezhouba Group, University of South Australia and approved by Ministry of Housing and Urban-Rural Development, came into effective as from 1 August 2016. Our participation in the preparation of "Code" represents our position in the field of China wind power.

### Central Research Institute participating in the revision of national mandatory standards

The draft revision of GB5226.1 Electrical Safety of Machinery – Electrical Equipment of Machinery – Part 1:General Technological Requirements (《機械電氣安全機械電氣設備第一部分：通用技術條例》), a mandatory national standards governed by Electrical Systems of Industrial Machinery of Standardization Administration of China (全國工業機械電氣系統標準化技術委員會), has been finished. Such standard is a part of promoting the implementation of Standardization and Quality Improvement Plan for Equipment Manufacturing Industry (《裝備製造業標準化和質量提升規劃》) reviewed and released by Executive Meeting of the State Council and promoting the implementation of "standardization + advanced manufacturing", which is a landmark. Shanghai Electric Central Research Institute put forward 28 significant amendments in nearly 6 months and completed the revision of the standard well. In view of the outstanding performance of the Shanghai Electric Central Research Institute in the revision to the standard, it will act as a main unit to participate in the preparation of the national standard of Industrial Machinery Digital Control System Part 2: Industrial Robot Control Devices Technical Conditions (《工業機械數字控制系統第二部分：工業機器人控制裝置技術條件》), which will benefit our research and manufacture of industrial robot control devices.

Picture on the right  
Shanghai Electric in CIIF



### Awarded half of the number of gold medals of CIIF

The 18th China International Industry Fair with the theme of "Innovation, Intelligence and Green" was held at the National Exhibition and Convention Centre. Shanghai Electric's EPR nuclear power steam generators and 4.5 generation high-resolution projection exposure machine won the gold medals, accounting for half in number of the four gold medals of CIIF. It was the first time that we were awarded two gold medals in this most influential international industrial brand fair, which also made us the leading one.

## 033

Chapter Two Creating Harmonious Development with Value



2.2 Shareholder Value

Shanghai Electric protects the legitimate rights and interests of shareholders in accordance with the law and deepens shareholders' understanding of the Company through continuous and standardized disclosure of information. We build an effective communication platform to promote the sound interaction between shareholders and the Company. The Company strives to create shareholder value and maintains a stable dividend distribution policy.

Shareholder returns

To achieve Shanghai Electric's everlasting foundation and sustainable development, we abide by the principle of “Code-first, Integrity above all, Win-win Cooperation”. We increase the transparency of our operation by disclosing more optional information to concrete investor relationship so as to improve our image in the capital market, and we exchange customers' trust and win the market with product quality and quality services.

The Company's main operating performance indicators have been improving since the listing. Shanghai Electric recorded revenue of RMB79.08 billion in 2016, representing an increase of 129.88% as compared with that of the first year after the listing. Net profit attributable to shareholders of the parent was RMB2.02 billion, representing an increase of 20.69% as compared with that of the first year after the listing. The shareholders equity aggregates RMB45.093 billion, representing an increase of 203.04% as compared with that of the first year after the listing.

	2016	2005	Increase in percentage
Total revenue	79,078	34,400	129.88%
Net profit attributable to shareholders of the parent	2,018	1,672	20.69%
Total asset	175,634	55,165	218.38%
Total shareholder equity	45,093	14,880	203.04%

In 2016, the Company didn't propose to distribute dividend in 2016 as the plan of intending to issue shares to purchase assets and raise supporting fund has not been implemented and in order to ensure the successful implementation of this transaction and for the interest of the Company's development and the shareholders' long-term interests. After the completion of this transaction, the Company will submit the relevant profit distribution plan as required by the law, regulations, regulatory documents and articles of association of the Company.

Information disclosure

Shanghai Electric has strictly complied with the Articles of Association of Shanghai Electric Group Co., Ltd. and the Information Disclosure Management System formulated by the Company according to the laws and regulations, and the requirements of the listing rules in Hong Kong and Shanghai to ensure information disclosure in a timely, true, accurate, complete and effective manner.

Investor relations

With the aims of protecting the legitimate rights and interests of investors and continuously improving investor relations, the Company sorted out and formulated systems and processes such as Working Standards for Answering Investors' Hotline (《接聽投資者熱線的工作規範》) and SSE e Interactive Platform Maintenance Guideline (《上證e互動平臺維護工作指引》), which enable us to build an active and dynamic interacting relationship with investors by regularly organizing activities for investors besides of dealing well with daily investor calls and reception work.

In 2016, the Company held 2015 Annual Results Conference, 2016 Interim Results Conference, 2016 the 1st and 3rd Quarter Results Telephone Communication Conferences in Shanghai and Hong Kong. It also held post results announcement roadshows in China and overseas, online roadshow and project roadshow up to 4 times in total. We held face-to-face meetings with investors for 44 times, conference calls with investors for 31 times and participated in the investor forums organized by securities companies in China and overseas for 9 times. In addition, by answering the investor hotline, replying investor emails received through IR email mailbox, through general meetings, investor reception day, SSE e interactive platform and company website and other existing legal channels, we strengthened the interaction and communication with shareholders and provided relevant information relating to the Company's operating results, financial and business development as required by investors, which satisfied the investors' and shareholders' relevant requirements for the Company and guided investors to understand the Company's strategies and development goals correctly.

Information disclosure in compliance with laws and regulations

The Company's information disclosure does not contain false records, misleading statements or material omissions since its listing. In addition, the Company made optional information disclosure reasonably, carefully and objectively and offer timely disclosure relating to undergoing of significant issues. The Company prepared and disclosed qualified periodic reports and temporary announcements in time: the Company issued 95 temporary announcements and 4 periodic reports on Shanghai Stock Exchange in 2016. The Company issued 162 temporary announcements and 4 periodic reports on Hong Kong Stock Exchange.

The independence of information disclosure

The Company has maintained the independence of the information disclosure since its listing. The Company and the controlling shareholders have maintained the independence of the business, personnel, assets, finance, organization and so on, and there is no manipulation and control conducted by the controlling shareholders of the Company and any person acting in concert with them. In addition, the Company informs the controlling shareholders of the Company and other major shareholders holding more than 5% shares from time to time about the relevant laws and regulations of the capital market and the listing rules relating to the listed shares so that the controlling shareholders of the Company and other major shareholders holding more than 5% shares can continue to improve the awareness of compliance and support the information disclosure of the Company actively and perform their liabilities of informing, noticing and equity change disclosing by law.



The picture on the right  
The management of Shanghai Electric  
at 2016 Interim Results Conference



Quality commitment

In terms of quality management and control, we strictly comply with the Product Quality Law of the People's Republic of China (《中華人民共和國產品質量法》), the Product Safety Law of the People's Republic of China (《中華人民共和國產品質量安全法》), Regulations on the Administration of Production License for Industrial Products (《工業產品生產許可證管理條例》) and other laws and regulations, continuously improve the rules of the Group and enterprises and technical specifications corresponding to relevant laws and regulations so as to establish a systematized quality supervision system with scientific authority and flexibility to meet needs. In recent years, Shanghai Electric has gradually formulated a series of quality management systems and specifications of the Group such as Shanghai Electric Regulations on Quality Works(《上海電氣工作質量規範》) under the supervision of the national laws and regulations, and by further strengthening the supervision and management of enterprise product quality, improving product quality, specifying responsibility for product quality, further reforming and improving supervision and inspection system, we have formulated a supervision and inspection system which takes supervision and inspection as the main manner and combines daily inspection, rectification review, specific projects inspection to its effect. In addition, the idea of quality risk management is also being continuously strengthened, and institutionalization and normalization works on risk monitoring, assessment, warning and disposal is being gradually promoted.

Help the industry to improve the quality management

Shanghai Machinery Industry Quality Association (上海機械工業質量協會) held an executive director meeting and membership meeting, seven members of our Group communicated and gave speeches at the meeting. Shanghai Electric Power Generation Group took "directing the quality improvement with quality information and data analysis" as the theme to share the working ideas, mechanisms and typical Cases. Shanghai Electric Nuclear Power Group and Shanghai Electric Power T&D Group exchanged their quality management concepts and actions in the plan of "Chinese Equipment Going Abroad" respectively. Shanghai Mitsubishi introduced its experience of "carrying out public quality activities and cultivating talents for quality" with emphasis on the analysis of its understanding to the motivation, capacity and sustainable mechanism for quality improvement. Shanghai Ri Yong-JEA summarized its development history over the past 30 years by introducing its products, standards, technical patents, continuous improvement, constant pursuit of excellence and its commitment to create potential value for customers. Shanghai Turbine Works Co., Ltd. introduced its experience on the suppliers credit construction and platform building for quality improvement platform" and shared its view of "improving quality management by comparing with first-class quality". Shanghai Boiler Works, Ltd. introduced a series of new attempts and good practices in quality culture construction and implementation, quality tools application and supply chain quality management.

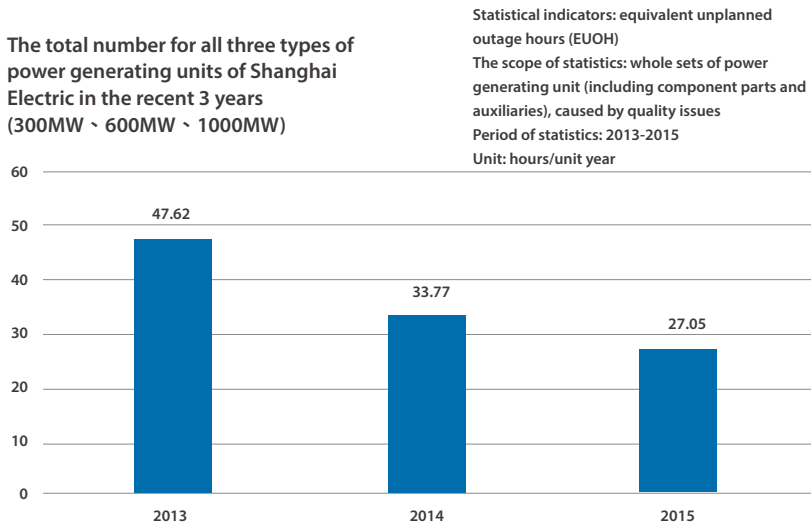


[Picture] Left  
Zhang Ke, Vice President of Shanghai Electric Group Company Limited delivered a speech on 2016 quality meeting of the Company

Power Generation Group Continued to Improve the Reliability of Power Plant Products

Shanghai Electric Power Generation Group launched the activity of "Improve the System Establishment, Enhance Risk Management and Control, Improve Customers' Satisfaction" under the theme of "Cultivate the Spirit of Craftsmanship, Improve the Quality Professionalism of the Shanghai Electric's staff" .

With the promotion of a series of quality management measures by Shanghai Electric Power Generation Group, reliability indicators of the power plant equipment increased every year. In the Power Reliability Indicators Report released by National Energy Administration, the 2015 equivalent unplanned outage hours of power plant equipment of Shanghai Electric was 27.05 hours, ranking the first. The Group provided the customers with reliable power plant equipment and sound economic benefits.



Note: the statistics of 2016 equivalent unplanned outage hours was not released yet

1

Establish Quality Management Information Platform

Quality problems were recorded and handled quickly through the unqualified incidents reporting and management system in which the cost of unqualified incidents was recorded and linked to SAP system. Quality improvement was discovered through statistical analysis and quality problem on the product and quality improvement project was launched in CAPA (Corrective Action and Preventive Action) management system so as to improve corporate quality efficiency and management continuously.

2

Promote Risk Management

The Company ran through various management and control risks, identified the risk level and developed the corresponding measures. Risk warning list was issued through identifying abnormal corporate quality indicators in big data analysis and according to the actual quality situation to push corporate management to pay attention to corporate quality management risk and take improvement measures.

3

Strengthen Supplier Management

The Company promoted the application of SRM supplier management system to realize supplier lifecycle management in the application system, including supplier preselection, supplier evaluation, supplier dynamic management and supplier performance evaluation. Supplier management system was improved, functional distribution was further specified and in line with the requirement of SRM system and supplier management was strengthened gradually to improve supplier management level.

4

Promote the Visibility of the Quality Cost

To improve the quality cost statistics, the losses of rework and repair, travelling expenses, the losses of warranty fund and performance test claim were included in the statistics of quality losses to provide support for quality big data statistics so as to discover the weaknesses in corporate quality management and implement improvement measures.

5

Carry out Customer Quality Visit

According to the feedback from the customers and the operation of the power generation units, the Company carried out quality visit on the key customers of Shanghai Electric, listened to customers' requirement and evaluated the operation of Shanghai Electric power generation units to provide further service and quality improvement so as to improve customers' satisfaction on an ongoing basis.





✓ Shanghai Mitsubishi Adhered to Appointing Third Party to Conduct Customers' Satisfaction Survey

Shanghai Mitsubishi adhered to appointing third party to conduct customers' satisfaction survey every year in the recent six years to further find out the differences between customers' expectation and experiences as its basis to improve products and services. Customers' satisfaction survey report of this year showed that the overall satisfaction on Shanghai Mitsubishi reached 84.32 points, which was a more satisfactory level in the satisfaction questionnaire, being the highest level over the six years. Each of the satisfaction indicators increased differently, and there were 90.3% of the customers regarded “Shanghai Mitsubishi Elevator” as a reliable brand, indicating the recognition and support from the customers for Shanghai Mitsubishi Elevator's products and services. In “quality month”, for those branch companies which got lower points in survey report in connection with the installation and repair service, Shanghai Mitsubishi Elevator proposed specific measures in many aspects, including service attitude, strict regulation of the management, assessment mechanism, training for staff technology management, hardware configuration and software support at business and workflow level to improve systematically. The subsidiaries will strengthen investment, enhance assessment, improve communication mechanism with customers and solve customers' problems actively.



PRC Customer Service Center of Shanghai Mitsubishi



Left  
The system interface of Shanghai Electric Wind Power's mobile phone APP “风云”

The Improvement of Service

Attitude determines the altitude, service creates value. Shanghai Electric is realizing the effective integration between manufacturing and service industries and showing a coexisting tendency of integration, interaction and interdependence. The servitization of manufacturing industry has become a major driver for the industry upgrading of Shanghai Electric and a key measure to enhance the core competitiveness of Shanghai Electric.

✓ SEPG Service Co., Ltd Established an Integrated Platform

On overseas market, SEPG Service Co., Ltd mainly focused on the new model of “overhaul for the whole plant”. Research showed that as we had a lot of power generation units operating in the Southeast Asian countries, customers hoped us to establish a service agency to meet the requirement for technology service for the power generation units and the urgent demand for the service for operation maintenance and spare parts, and they also hoped that Shanghai Electric could arrange technicians to conduct diagnosis for the power generation units. We should provide the relevant service as customer required. On the one hand, we should share the achievements of our technology advancement with foreign customers and improve the operational efficiency of the power generation units. On the other hand, the service, respond speed would be continually improved and service quality including technology support, products and transportation would be improved by the establishment of resident service team and other measures. Getting more industries of the Group to participate in the service integration platform and going global together was both a goal and a challenge.

✓ Wind Power Group Established Rapid Response Mechanism

Upon the successful launching of the PC version of “风云” system of Shanghai Electric Wind Power Group, the mobile APP of “风云” system launched successfully in 2016 which realized the control of “风云” in hand and checking of the situation of the wind power equipment at any time. Customers can check the real-time information of all wind farms and the related wind power equipment by login mobile phone APP which provides clearer and more attentive services for the customers. The APP system was well-recognized by the customers for its convenience, powerful functions, user-friendliness, smooth operation and other characters.

✓ Development Drive from the Five Capital Pools

Shanghai Electric Group Finance Co., Ltd will carry out the transformation and reform through its own transformation into a service-oriented group. It will transform from an “execution-oriented” treasury to a “management and plan-oriented” treasury, from a simple “internal bank” to a “value-added financial service platform” and from the new business of “isolate marketization” to a growth engine with “reliance on the main business” to innovate financial service and to safeguard the development of Shanghai Electric. The successively established FTA capital pool, Citibank global capital pool and the previously established RMB capital pool, foreign exchange capital pool and two-way cross-border RMB pool realized the centralized management of the five businesses, namely deposit, loan, account, foreign exchange and payment through the highly efficient and safe operation. Thus, the structure of the financial company's capital pools will tend to be complete and function will be improved, which reflects its function of capital increment and safety monitoring.



Recognition from the Customers

We stick to the concept of “quality the priority, customers first, service optimization” and commit to creating value for the customers and realizing the achievement of customers and ourselves on a customer-oriented and service-oriented basis. The popular recognition from the customers and all communities is the original strong drive for our development.

India SASAN Project Was Highly Appreciated by the Power Plant Owner

India SASAN project undertaken by Shanghai Electric was operated in the model of BTG project. It exported the self-designed Shanghai Electric brand main units and auxiliaries including 660,000kw super critical boiler, steam turbine and generator, and provided installation instruction and testing and operation instruction services. The project created a number of records in India and even throughout the world, and was highly appreciated by the power plant owner Reliance Industries who published an article on Indian mainstream newspaper for the appreciation. The environmental friendly technology and equipment provided by Shanghai Electric in India SASAN project were also mentioned in the report.



感谢信

上海电气集团股份有限公司：

感谢一直以来对河南平芝公司的大力支持！  
贵公司员工陈健在 550kV 山西平鲁变电站 GIS 调试过程中，不畏严寒、任劳任怨，工作认真、细致、责任心强，与我公司员工紧密配合，圆满、出色完成了整站联调工作，为平鲁站最终一次耐压通过做出了卓越贡献，得到了用户的一致肯定！

请贵公司转达我公司对这位员工的感谢，并希望这种认真、负责的态度能够在以后的合作中继续保持！

此致  
敬礼！

河南平芝高压开关有限公司  
2016年12月19日

Getting Customers' Appreciation for Being Responsible

The construction period of the 550kV transformation station in Minghai Lake, Pinglu, Shanxi (山西平鲁明海湖) was very tight, and it was winter in the North China, the snow on the roads didn't melt yet because of the cold wave. The transportation was inconvenient and the living condition was very difficult as the transformation station was located in the mountainous area. The engineers of Shanghai Electric Power T&D Group and customers lived in the adjacent house rented from the villagers, and worked in the early morning and went back home late to prolong the working time so as to ensure the construction to be completed as soon as possible. With such hardship, the commissioning was successfully completed after one and a half months' hard working. In that period, the difficulty of the suspension of the commissioning due to the lack of material was overcome, paralysis in hands and feet caused by cold weather was overcome, the misunderstanding caused by the inconsistency between site requirement and the drawing result was overcome and the inconvenience in life was overcome so that the task was successfully completed at last with two thumbs up from the customers.

Shanghai Mitsubishi Ranked First in Terms of “Preferred Suppliers' Brands of Top 500 Chinese Real Estate Enterprises” for 6 Consecutive Years

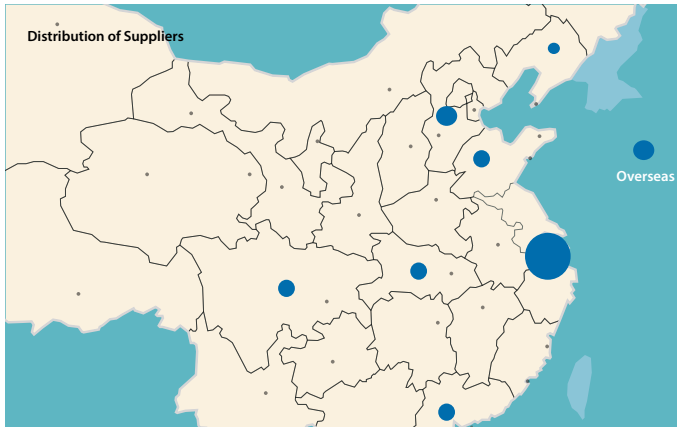
In the press conference of the survey result of the top 500 Chinese real estate enterprises, which was known as the “Oscar” celebration in Chinese real estate industry chain, Shanghai Mitsubishi Elevator got 19% (the highest in the industry) of the votes in the selection of the top 500's preferred suppliers (elevator) and rank first for 6 consecutive years. Shanghai Mitsubishi Elevator has been popular among the customers for many years, and there were 9 real estate development companies which rank top 10 in China entered into strategic cooperation agreement with Shanghai Mitsubishi Elevator, covering considerable landmark projects in China, all of which reflected the high recognition from the high-end customers to Mitsubishi Elevator.

Upper picture

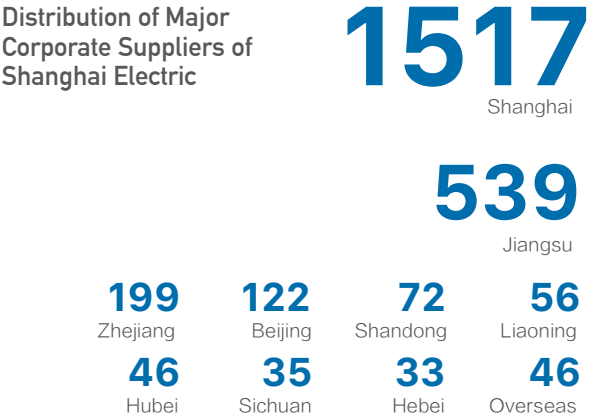
Customers' Appreciation in Return for our Diligent Discharge of Responsibility

Lower picture

Shanghai Mitsubishi Ranked First in Terms of “Preferred Suppliers' Brands of Top 500 Chinese Real Estate Enterprises” for 6 Consecutive Years



Distribution of Major Corporate Suppliers of Shanghai Electric



2.4 Partner Value

In face of fierce market environment, we worked together with suppliers, competitive partners and social resources to carry out communication, exchange and cooperation in all access including government-enterprise, enterprise-enterprise and production-study-research and establish share mechanism platform to make up the weakness of each other and realize mutual benefit and development.

Cooperation and All Win

We improved assistance to the supplier operation system and communicated between the suppliers and purchasers to create an atmosphere of cooperation and all win between supplying and demanding parties, improve the core value of purchase, strengthen honest and regulated cooperation and improve quality control on an ongoing basis so as to create a “clean, open and all win” purchase and supply chain system.

As for purchase management, we strictly adhered to the national laws and regulations including Contract Law of the People's Republic of China, Law of the People's Republic of China on Tenders and Bids, Law of the People's Republic of China on Product Quality, Pricing Law of the People's Republic of China, Guaranty Law of the People's Republic of China, Audit Law of the People's Republic of China and Law of the PRC against Unfair Competition and formulated purchase management system and regulation including Shanghai Electric's Purchase Management and Shanghai Electric's Centralized Purchase Management in the combination of the actual situation of the Group to normatively improve the purchase work of the subsidiaries under the Group, strengthen risk control for purchase business and provide a sound foundation for improving purchase operation capability and product quality of the Group.

Establish an Integrated Platform for the Coordination between Purchase Management and Suppliers

In order to meet the requirement of improving the lifecycle management for the suppliers, we accelerated the application of “Platform for the Coordination between Purchase Management and Suppliers” (SRM) in each business segment. Now the platform covers the business segments including some enterprises under Shanghai Electric Power Generation Group, Shanghai Electric Power T&D Group, Shanghai Electric Nuclear Power Group and Shanghai Electric Wind Power Group. The related businesses were also integrated into the platform, and the platform would realize systematic management on the suppliers through advanced information method to share supplier resources in the Group, reduce the cooperation risk from suppliers with poor credit and strengthen cooperation between purchase and other business to improve efficiency after the application of the platform.

Model Workers Create “Skill Supply Chain” by Twinning

Shanghai Boiler Works held master skill teaching activity in the subcontractor's company, and two model workers signed the twinning agreement. They would carry out a series of activities including technological breakthrough, staff training and experience exchange under the arrangement of their respective companies. To cultivate qualified supply chain system, Shanghai Boiler Works has stuck to providing cultivation and assistance for quality insurance system, quality management, process development and manufacturing to the suppliers which brought many companies significant development and improvement. These two twinning model workers were both welding professionals, they would carry out teaching, helping and encouraging activities through helping each other and mutual learning and introducing technician courses into the working groups to break through the bottleneck in the enterprises' production, enable the inheritance of “unique skills” and inject vitality into the sustainable development of both parties.

Polices and Commitments Safeguarding the Suppliers, Subcontractors and Customer Dealers


Shanghai Electric Wind Power Group was committed to continuously improving the entire supply chain management and the supply chain performance. Its cooperation with suppliers included dealing in and outsourcing key components and parts and establishing long term partnership with suppliers with stable quality and good reputation, in which we formed a relation mode of risk sharing, mutual benefit and all win. We ensured the control of supply chain at any time by focusing on continuously improving and strengthening management foundation internally, and developing long term friendly cooperation relationship with the related parties externally with the principles of win-win and common development.

Common Development with Upstream Suppliers

Shanghai Electric Power Generation Group paid great attention to helping the self-improvement of the suppliers and carried out VAP (supply chain value analysis process) in all enterprises, in which the Group instead of simply making requests for the suppliers, but to propose requests for improvement and verify by comprehensively analyze the problems with the suppliers so as to improve the suppliers' product quality and management capability and the competitiveness of the supply chain. One of the environmental friendly equipment suppliers used to put the qualified steels on the ground without any distinctions and classified them according to staff's experiences. Shanghai Electric Power Generation Group proactively provided the supplier support to complete the sorting of this procedure. The qualified steels were distinguished with marks according to their type and specifications. Different colors were painted on the top of the rebar according to their type of materials and marks were made in time, meanwhile there was a distinct list matching the materials and specifications of the rebar in different colors, making everything clear.

Color Identification Table for Rebar in Dowel Workshop

Type of Steel Pipe	Color
310S	Yellow
309S	Red
304	Green
15CrMo	Blue
12Cr1Mov	White
1Cr13	Black

 上海电气 SHANGHAI ELECTRIC	上海电气风电集团	编号 LENS-075 版本/日期 3/2016-09-12 页码 第2页 / 共13页
供应商质量管理（SEWP）		文件类型：本地操作细则

1. 概述

1.1 目的

本文件是为了确保供应商的制造能力，确保供应商按公司要求提供指定产品和服务。本文件将确保完成所有业务活动，以保证任何风险会在早期被发现。

1.2 适用范围及有效性

本文件适用于风电集团、下属企业及其子（分）公司。

本文件中所提到的供应商是基于 ISO9001 或 TS16949 质量管理体系下，提供产品或服务的供应商。

为了保障供应商生产的零部件与提供的服务达到我们的质量要求及其他特定要求，所有如下对象必须按此流程操作：

第一，供应商会提供不同种类的产品（如原材料、组件、零件、制造材料、软件），这必然会直接或间接影响到供给客户最终产品的质量。供应商必须满足内外部要求（如技术参数、法律、标准、安全等）及客户期望。

第二，服务（如：工程服务、材料测试）也会直接或间接影响到供给客户最终产品的质量。服务质量必须满足内外部要求（如技术参数、法律、标准、安全等）及客户期望。

第三，用于产品制造过程控制的产品质量数据清单中的零件或材料清单。

第四，供应商必须用于保障供应商的质量，或保障（如：2D/3D）产品的更新，及设计变更或数据更新。

供应商必须按照此流程提供供应商与我们的加工中，必须按照供应商可提供的资源进行过程和产品认证等以验证其能力，检查及加工环节的更新。

本文件适用于所有与上海电气风电集团相关部门的供应商。

名称	Business Performance Analysis 供应商绩效评估
目的	Connection action 纠正措施
内容	Connectivity Manager 物料连接管理
过程	Connectivity Team 物料小组
控制	Control the Quality 质量过程管理



Fair Competition

We complied with the regulations on competition, participated in fair competition and opposed obtaining competitive advantage by illegal methods. We proactively promoted our enterprises to participate in cooperation of the industry organizations and established industrial cooperation platform to make contribution to the overall development and progress in the industry.



Left

Li Jianjing (李健勤), deputy party secretary and director of Shanghai Electric and Hua Xingsheng (華杏生), secretary of the commission for discipline inspection took charge of the leaders and cadres work report meeting

Wind Power Group Prevented Corruption in Business Activities

Shanghai Electric Wind Power Group advocated healthy, orderly and benign market competition and prevented corruption in enterprises' activities to fight against unfair competition in the industry. The Group invited the Procuratorate of Minhang District of Shanghai Municipality (上海市閔行區檢察院) to deliver a lecture with a theme of Preventing Duty Crime and Sticking to the Bottom Line, carried out communication before taking office and anti-corruption education for the newly appointed cadres, required the newly appointed cadres to comply with the relevant regulations on honesty and built prevention line for thoughts to keep alert. Party member cadres were alert to be self-disciplined and set up good models by real cases including playing warning education films to analyze the reasons for practicing corruptions.

Automation D&R Institute Co., Ltd Established and Consolidated Operation Bottom Line

Shanghai Electric Automation D&R Institute Co., Ltd made efforts to combine the improvement of legal system and the construction of incorruption to improve anti-corruption and the construction of legal system in the Company efficiently and govern the company according to the laws. Inspection and monitor procedures in all stages of the Company's operation were strengthened in the construction of the rule of law. The Company continuously formulated and improved all internal control management systems and published Policy Compilation (II)-Internal Control (tentative version) to strengthen the daily management and monitor on purchase, sale, project, contract, outsourcing, fixed assets, finance, human resources and after sales service. Meanwhile, discipline inspection commission of the Company also arranged the members of the management, middle-level cadres and staff in key positions to watch corruption warning education films to further strengthen self-discipline on corruption.

Shanghai Mitsubishi Fought Against Commercial Bribery and Corruption

Shanghai Mitsubishi was committed to honest operation according to the laws and fought against commercial bribery and corruption. Approximately 30 persons from the party committee, discipline inspection commission and the key positions were arranged to watch warning education film -Alert Bell in SOE together. The ways of the work of discipline inspection commission and financial audit integrating into the development of enterprise's transformation were further broadened. Efficiency supervision and internal management were used as the effective methods to bring continuous achievements to the prevention and control management of the Company. As the party honesty emphasized on system improvement, the Company prepared its customized system construction plan, amended and improved 4 systems to further improve anti-corruption prevention system. The Company audited each internal branch and engaged "Top Four" accounting firms to carry out designated audit.



Achieved All Win Together

We further strengthened resource connection with external enterprises and scientific research institutions, integrated global innovative factors including "personnel, capital, information and technology" and absorbed intelligence from different sources to improve technology advantage and core competitiveness of the Group and share the achievements of technology advancement and industry development.

Shanghai Electric, Poste Italiane and Ansaldo Entered into Cooperation Memorandum for H Class Gas Turbine Development

In the afternoon on 22 February 2017, witnessed by Xi Jinping, President of China and Sergio Mattarella, President of the Republic of Italy, Shanghai Electric, Poste Italiane and Ansaldo Energia entered into a memorandum for joint development of technology of H class gas turbine in the Great Hall of the People in Beijing. Executive director and President Zheng Jianhua from Shanghai Electric, CEO from Poste Italiane and Director Giuseppe Zampini from Ansaldo Energia signed on the cooperation memorandum on behalf of each party.

Li Keqiang and Trudeau Witnessed Nuclear Industry Cooperation between China and Canada

Under the witness of Premier Li Keqiang of the State Council and Canadian Prime Minister Trudeau, China National Nuclear Corporation, SNC-Lavalin Group and we signed joint communique to principally agree to establish a new joint venture to jointly research, develop, promote and establish advanced fuel CANDU reactor which was a new cooperation on nuclear between China and Canada after two 700MW CANDU projects in Qingshan Phase III.

Acquisition and Merger Made New Achievements

In 2016, to adapt to the transformation of national energy strategy, we acquired part of the equity interest in MANZ of Germany and cooperated with Shenhua Group and MANZ to jointly develop CIGS thin film solar battery project. To actively enter domestic aviation industry market, we acquired BAW of Germany to officially tap into aviation manufacturing based on the technology of BAW. Moreover, upon the finalization of the equity interest acquisition agreement, Clean Technology Universe AG (CTU) officially became a wholly-owned overseas subsidiary under Shanghai Electric.

Established Technology and Innovation Platform with University of Shanghai for Science and Technology

Under the background of the construction of global technology and innovation center in Shanghai and based on multiple models and a series of joint research platform, University of Shanghai for Science and Technology and we innovated a cooperation model between school and enterprise and jointly trained high quality compound professionals with capabilities of engineering, innovation and sustainable development by the close combination of scientific and research cooperation, professional training and resource sharing to establish advanced joint innovation platform between school and enterprise in China, and improve both parties' overall technology innovation capability and core competitiveness comprehensively. The cooperation will not be limited in energy power, its scope and depth will be further broadened into intelligent manufacturing, medical rehabilitation equipment and other aspects including prospective technology reserve.

Below

Shanghai Electric and University of Shanghai for Science and Technology signed comprehensive strategy cooperation agreement





# 03

## Leading Development for Mutual Benefits with Responsibility

We understood that the sustainable development was impossible without support and participation of each stakeholder. We strived to take care of our staff, investors and society and share the fruits of our development with such stakeholders involved in our operation and the society by practicing production safety, protection of rights and interests and public welfare charity etc.

### 3.1 Responsibility towards Government

We upheld the principle of legal operation, carried out scientific research and production and operation management lawfully, stressed integrity, credit and moral, and strictly complied with relevant regulations and systems.

The picture on the right  
Zhou Bo (周波), Deputy  
Mayor of Shanghai visited  
and gave guidance





## Law Compliance

### 01

#### Supporting the Group's Development by Governing the Enterprises Lawfully, Implementing at All Levels and Improving the Management and Control System for Legal Risk

Shanghai Electric paid attention to governing enterprises lawfully, focused on improving the scientific and effective interests coordination mechanism and the demand expression mechanism, and deepened risk awareness, responsibility awareness and legal awareness to prevent the risks from the source and resolve conflicts and disputes. The Company comprehensively reviewed all kinds of legal risks and developed risk response plans by making compliance with laws and regulations a premise and by making promotion of strategy implementation, assurance of the transaction security and proper compliance of daily operations as targets. The Group has achieved effective operation at all levels with its legal risk management system through top-level design and hierarchical control, which has better supported the Group's development strategies.

### 02

#### Legal Operation, Being Honest and Trustworthy, Safeguarding Legal Rights, Taking into Account Social Effects and Becoming a Law-abiding Model

The Group's legal counsels were deeply involved in the whole process of business operation activities, providing strong legal support for the decision-making and risk prevention and control of the Group and ensuring that the Group took the lead in implementing national policies, operating lawfully, being honest and trustworthy and participating in competition fairly. In 2016, we worked in line with the asset securitization work of the parent company, promoted industrial structure optimization, and supported reform adjustment. We promoted the Group's legalization, normalization and standardization work, as well as improvement of model contract and other basic documents, revised the Contract Management System(《合同管理制度》)and expressly specified that contract signing officers must pass the corresponding legal exams before taking their office. The Group continued to improve their management by regularly carrying out internal control, contract management and the special inspection of system implementation.



### 03

#### Shaping Legal Culture, Strengthening Team Building, and Improving the Ability to Govern Enterprises Lawfully

Shanghai Electric focused on integrating the concept of legal governance and social responsibility into the corporate culture. We have regarded honest operation, environment protection and initiative participation in public welfare undertakings, etc. as the common moral standards to be abided by all staff. The formation of common values and team spirit has made the implementation of social responsibility as the ideological consciousness and action consciousness of the enterprise's employees, which would lead the healthy development of enterprises. In 2016, the Group's Legal Department carried out training on Corporate Directors' and Senior Management's Ethical Obligations(《公司董事高管忠實義務》) and Corporate Legal Risk Prevention and Case Analysis(《企業法律風險防範與實例分析》) etc. for middle-level and senior executives of the headquarter of the Group and party chiefs as well as administrative leaders of subsidiary companies, and prepared training materials and provided training in respect of legal knowledge on contracts for the Group's front-line staff in purchase and sales divisions, and the number of participants being close to one thousand. We carried out the public education of legal knowledge through the legal intranet and the Shanghai Electric News(《上海電氣報》), in particular, analyzed, interpreted and publicized the laws and regulations that were newly introduced by the country and closely related to the Company's business.



Tong Liping (童麗萍), Chief Legal Officer of Shanghai Electric provided advice and recommendations at the Forum of Legal Risk Management.

### 04

#### Caring Actively about the National Economy and the People's Livelihood, Providing Advice and Recommendations and Promoting the Development and Progress of the Industry

Shanghai Electric actively participated in the exchange activities held by the relevant departments of the NPC, Municipal Committee and industry associations, and actively provided advice and recommendations on the reform of state-owned enterprise, scientific and technological innovation, urban construction and governance, corporate bankruptcy protection, legal system establishment and supervision of free trade zone and so on. The Chief Legal Officer of the Group served as the deputy of the NPC and participated in the relevant legislative investigation research and law enforcement inspection activities (such as "Sixth Five-Year Plan for Law Popularization", Difficulties in Judicial Reform and Enforcement, Road Traffic Ordinance and Social Governance and Social Credit Legislation and other various special inspection and supervision activities) as a distinguished expert in the Internal and Judicial Affairs Committee of Municipal People's Congress, and organized a forum for the NPC and Shanghai state-owned enterprises on the enforcement of the Court, and continued to promote the bankruptcy trial work for court. In November 2016, the Chief Legal Officer (as the sole enterprise representative) participated in the symposium held by NPC in Shanghai for listening to the opinions of the six provinces and one city on the General Principles of Civil Law, and her advice was paid attention to and well received. Shanghai Electric, as the unit taking up the office as Vice President of Shanghai Corporate Counsel Association (上海市企業法律顧問協會), actively promoted the legal exchange and development of enterprises. The legal team of Shanghai Electric has organized a legal service team of labor dispute and mediation for Shanghai Mechanical and Electrical trade union so as to continuously provide legal consultation and assistance services for employees of mechanical and electrical industry. Chief Legal Officer of Shanghai Electric was named the National Excellent Lawyer in 2016, the first and the only company lawyer to receive such award.

### 05

#### Promoting Actively the Group's Strategy "One Belt One Road", Technology Innovation, and the Supply-Side Structural Reformation to ensure the Legitimacy

On the basis of the corporate's social responsibility, Shanghai Electric has changed the local energy situation by actively developing domestic and overseas power plants, power transmission and distribution and environmental protection projects in EPC, BOO, PPP and other forms, and facilitated the formation of an international regional cooperation mechanism for mutual exchanges and development, win-win cooperation and value sharing. The Group's Legal Department provided timely and efficient high-quality legal services. Through the investigation of the legal environment and the analysis of relevant policies and regulations, it put forward risk control requirements and recommendations in response to the risks, actively assisted the Company to identify and resolve risks and ensured the Company to comply with the national and regional laws and regulations, and respect local ethnic culture and religious customs for better integration into the local community and promoting local employment, and making a positive contribution to the local economic and social development and establishing a good corporate image.

#### Paying Taxes in Accordance with Laws

Paying taxes in accordance with laws is the most basic corporate social responsibility. Shanghai Electric strictly complied with the national financial regulations, ensured proper daily operation in compliance with laws for steady development. Based on the principles of "paying tax according to laws with integrity", we set up the relevant tax payment system and business process, and established a sense of glory for being a taxpayer.

#### Enterprises' Ranking on the List of 2016 Top One Hundred Tax-paying Companies in Industry Category in Shanghai

Shanghai Mitsubishi Elevator Co., Ltd.

**RMB 745** million **No. 18**

Shanghai Electric Power Generation Equipment Co., Ltd.

**RMB 615** million **No. 25**

Shanghai Boiler Works Co., Ltd.

**RMB 500** million **No. 31**

Shanghai Electric Group Company Limited

**RMB 418** million **No. 38**



## Supervision and Inspection



### Wu Zhiming (吳志明) visited the Shanghai Electric's Production Base in Lingang Area

On 26 April, Wu Zhiming, the chairman of Shanghai Municipal Committee of Chinese People's Political Consultative Conference and his entourage visited the Shanghai Electric's production base in the Lingang Area to understand the development of nuclear power equipment industry in Shanghai and the cutting-edge nuclear power technology. He also attended the symposium on "Proposals for insisting on innovation to drive and lead the nuclear power technology development in the world", a key proposal discussion event held by the Municipal Committee of CPPCC.

### Li Jiheng (李紀恆) visited Shanghai Electric Yunnan Wind Power Company

On June 7, Li Jiheng, the secretary of CPC Committee of Yunnan Province and his entourage visited Shanghai Electric Wind Power Yunnan Co., Ltd. (上海電氣風電雲南有限公司) and conducted on site research. He hoped the enterprise may focus on the market demand and technological advantages and expediently form the industrial cluster.



### Fu Fengchun (符鳳春) visited Shanghai Electric Wind Power Heilongjiang Company

On 25 August, Fu Fengchun, the Secretary of CPC Committee and the Deputy Director of the Standing Committee of the People's Congress of Heilongjiang Province visited Shanghai Electric Wind Power Heilongjiang Co., Ltd. (上海電氣風電黑龍江公司). Ms. Fu stated that she wished the company may seize the opportunity of revitalization of the old industrial bases in Northeast China and make full use of its ecological and geographical advantages to build featured industrial clusters and actively cultivate and develop new form of industry.

## 3.2 Responsibility for Safety

The Group fully practiced the core values of "People's Life above All Else" and implemented the concept of "Safety, Green Manufacturing and Creating Future Together".

### Safety Management System

By focusing on the concept of "People's Life above All Else, and Safety, Green Manufacturing, and Creating Future Together", the Group has built up the management system characterized by standardized approach, the accountability system based on the safe and environmental protection responsibilities check list, and the function system focused on vertical allocation of safety and environmental protection related responsibilities, and formed a multilateral and multi-dimensional ecological management and supervision work pattern for the Group's safety and environmental protection work.

### Continuously Improve the Safe and Environmental Management System

In 2011, the Safety and Environment Committee of Shanghai Electric developed and effectively implemented the "SEC-LOVE" system in an effort to promote the continuous improvement of the Group's safety and environmental protection. In 2016, the Group cooperated with the China Academy of Safety Science and Technology (中國安科院) to conduct a professional evaluation on the Group's safety and environment management system and to optimize the system in the context of the demand of modern enterprise. The optimized system emphasized on the key elements including the valuation concept, group level control, leadership, performance management and vertical supervision, and made "SEC-LOVE" system to be more comprehensive, contemporary, operable and measurable.

The Group formulated and released the "13th Five-Year" Development Plan on Production Safety and Environmental Protection as the ancillary plan to the "SEC-LOVE" system, and comprehensively revised the Group's safety and environment management system and policies which had been released in June 2016.





Outlook and Commitment of the Group to Safety in the 13th Five-Year Period

The number of production safety related accidents will be controlled below the indices set by the office of the Shanghai Administration of Work Safety.	No occurrence of any production safety accident of "large scale" or above levels or emergent environmental pollution incident.	No occurrence of major fire or explosion accident.	No occurrence of food poisoning incident.	No occurrence of any new cases of occupational diseases.
Key persons in charge and the managers in charge of the production safety will receive scheduled training. All staff for special operations will obtain the relevant license for operation.	Production safety standardization is implemented in all manufacturing units.	All the hidden hazards of major accident will be rectified.	The targets of pollutant emission reduction set by the government authorities will be achieved fully.	Other production safety related targets and tasks delegated by the competent authorities will be achieved and completed on schedule.



Implement the Safety Risk Control Plan

In order to establish comprehensive and multi-layer control over the production safety risks and to effectively implement managerial measures, construction and technical measures and individual protective measures in relation to the production safety risks, the industrial business units and the production enterprises under the Group are required to carefully study the Measures of Shanghai Electric on Control of Major Risks of Mechanic Plants related to the Production Safety (《上海电气机械工厂生产安全重要风险管控措施》) and fully implement these measures to re-identify the risks factors in accordance with the provisions and the template framework in the above Measures based on their actual risk profile and respective production process. Based on the result of the risk factors identification, the enterprises were required to conduct risk assessment and establish risk management mechanism by preparing their respective Class I, II, III, and IV risk control measures with reference to the related content of major risk control measures of Shanghai Electric for the risks of Class I and II, so as to avoid accident effectively.

The picture on the left

The Vice President of China Academy of Safety Science and Technology visited the "Exhibition of Shanghai Electric's Achievement on Production Safety in a Decade", accompanied by Zheng Jianhua (郑建华), the Deputy Secretary of the CPC Committee and the President of Shanghai Electric

The picture on the right above

Over one thousand team leaders personally experienced simulated safety hazards

The picture on the right below

Emergency drill for radioactive source leakage



Education Safety and Training

The Group has placed significant emphasis on safety related training and education, and defined the staff safety training requirements and improved the awareness of the employees on safety related "processes, risks and measures", which continuously improved the culture for safety awareness and climate within the Group.

"Production Safety Month" Events

In 2016, a total of 25,909 employees of the Group participated in the Group's "SEC-LOVE" safety and environmental supervision system training and publicity event; 1,154 managers and leaders of the Group, both from the CPC system and enterprises system, participated in the activities of the joint accountability programs; 29,097 staff participated in the safety alertness and awareness education programs. During the past year, 1,637 hidden dangers were identified and rectified in the program with the code name of "Woodpecker"; 3,627 rationalization suggestions were received; 8,745 staff on the safety functions participated in the relevant training; and 3,546 employees participated in the emergency drills. The "Safety Production Month" series events have achieved fruitful results. Shanghai Electric was awarded an advanced unit in the nation-wide "Safety Production Month" initiatives.

Holding Emergency Drill for Radioactive Source Leakage

Shanghai Electric Nuclear Power Equipment Co., Ltd. held a "desktop emergency drill for radioactive source leakage accident". The background of this drill was based on a scenario that the class II radioactive sources iridium-192 fell out accidentally during the transportation by Shanghai Electric Nuclear Power. With the efforts of all participants, the drill was conducted in an orderly manner based on the contingent emergency response plans of Shanghai Electric Nuclear Power and all levels of the Nuclear Power Group through the whole process from reporting of accident, initialization of the emergency response plan, emergency treatment teams mobilization, on-site commander issuing orders, radioactive source being properly put into the lead barrels, staff gathering for counting, injured personnel and exposed persons under proper treatment.

Exhibition of the Ten-year Safety Achievements at 5 places

Shanghai Electric's Safety Supervision Centre selected 32 outstanding achievements for display from over 200 achievements on safety culture and safety technologies recommended by the industrial groups and enterprises of the Group. The displayed works represented the highest level in safety culture and safety technology area of the Group during "11th Five-Year" and "12th Five-Year" Period.

Over One Thousand Team Leaders Experienced the Simulated Safety Hazards

At the Shanghai Electric's safety production experience pavilion, more than one thousand team leaders attended a total immersion style training on safety production and immersive experience of the danger and the seriousness of the production safety accidents, which improved their safety awareness and behavior standard. The experience pavilion was divided into two parts, namely the safety culture display area and the safety risk simulation experience area. The exhibition showed the safety culture and safety concept of the Group and the achievements of member enterprise on the safety system construction by displaying in forms of flat panels, three-dimensional models and multimedia images, etc. The somatosensory training scene was realistic by adopting a great deal of 3D, animation, sound, lighting and electronic technologies as well as physical display and operation in 8 simulation experience modules including the mechanical processing, object striking, lifting and swing, fire safety, high-place operations, safe electricity and human first aid.



Commitment to Safe Production

Under the leadership of the Municipal SASAC and the Municipal Safety Supervision Bureau, Shanghai Electric fully implemented the principles set out in the documents and the work assignments of the Municipal SASAC and the Municipal Safety Supervision Bureau regarding safe production and environmental protection. By closely focusing on the requirements of Shanghai Electric's "13th Five-Year" Development Plan on Safe Production and Environmental Protection (《上海电气“十三五”安全生产、环境保护发展规划》), the Group implemented the "SEC-LOVE" safe production and environmental protection management system, and made efforts to implement the safety and environmental protection accountability system featuring "joint accountability of the CPC system and enterprise system, a post with double responsibilities, concerted efforts and joint management". The Group has made fruitful achievements in the innovative implementation mechanism of main safety and environmental protection accountability, the innovative risk factors identification and handling mechanism and the creation of operational mechanism of safety culture, and has built a new type of safety and environmental protection management system. The Group's safety and environmental protection status were stable and kept improving.

Shanghai Electric's Input on Safe production for recent Two Years

2015  
**RMB113.61** million

2016  
**RMB147.19** million

The picture on the bottom  
Shanghai Mitsubishi fully supported Hangzhou G20 Summit



Public Safety Responsibility

Safe development is the foundation and an important part of scientific development. By adhering to the concept of "working with the public and promoting the harmonious development of society", the Group continued to improve its safety management expertise and endeavored to ensure the safe production in an effort to achieve the harmonious development with the society.

Highlight the Importance of Public Safety

The Group listed 9,515 hazard sources, re-identified the public hazards and public safety risks in locations vulnerable to major accidents, such as fire and stampede, and listed 46 major risk control points in 9 categories, and formulated and promulgated the Public Safety Risk Control Measures Plan for Shanghai Electric's Rental Property (《上海电气出租物業公共安全风险管控措施计划》). The Group also invested tremendous manpower, material and financial resources in initiatives implementing the Risk Control Measures Plan, including without limitation making risks notification, clarifying the personal accountability regarding supervision, conducting risk control training, building up emergency response teams, implementing multi-dimensional control such as check list based safety checks, so as to ensure the implementation of risk control measures. A comprehensive and multi-dimensional risk prevention and control mechanism has been established for common areas with clear responsibility, risk classification and measures to the duty.

Comprehensive Fire Safety Special Check and Rectification Program

The Group viewed the fire safety special check and rectification program as one of the key elements of safe production. The Group organized "Zero Hour" inspection on the rental properties, and conducted inspection and checking on the building material markets leased out by the Group and the tenants involving business of hazardous chemicals storage. The Group also carried out a comprehensive fire control inspection in all member enterprises and organized fire emergency drills in the key premises to prevent any fire accident that may have material social impact.

Shanghai Mitsubishi helped ensure elevator safety at Hangzhou G20 Summit

The world-renowned G20 Summit was held in Hangzhou in September 2016. Leaders of China and other participating countries made a very high remark on this summit. Shanghai Mitsubishi's products were used in various meetings and service venues including Hangzhou International Expo Centre, the main venue of the summit. Shanghai Mitsubishi held a mobilization meeting and coordinated the overall arrangements for staff, spare parts and exerts strict control over each process including installation, maintenance and overhauling. The company also sent 5 experts and over 60 supporting staff to provide service support for the Summit including security for safety, quality inspection, service management and other aspects, and carried out a special supporting work for 244 elevators of various types to ensure the optimized performance of these elevators.

Safety Management Performance

In 2016, there was no occurrence of any fatal production safety accident, major environmental pollution incident, serious fire incident, food poisoning incident or new occupational diseases case involving the Group throughout the municipality of Shanghai. The Group was awarded the leading entity of the National Safety Production Month Event and the benchmark enterprise of National "Internet+ Era" Safety Culture Establishment. Shanghai Turbine Works Co., Ltd. (上海汽轮机厂) was awarded the National Demonstration Unit for Safety Culture. The Group also implemented and completed the comprehensive assessments on the occupational health management status of Shanghai Electric and its affiliates with assistance from third parties.



The picture above  
Shanghai Turbine Works Co., Ltd.



### 3.3 Responsibility towards Employees

Employee development has always been a fundamental focus of the Group. The Group strongly promoted a "people-oriented" modern management system, and actively created a favorable environment that enables employees to fulfill their full potential and maximize their personal value. The Group also endeavored to constantly improve the system of personal growth and development of employees, as well as provide protection and create conditions for employees to promote the growth and development of both the enterprises and their employees.

#### Protection of Employee Rights and Interests

From the perspective of strategic development, the Group is fully aware of the importance of protecting the rights and interests of employees, and will strive to protect the rights and interests of employees in an in-depth, detailed and pragmatic way with the sense of responsibility and mission.

In line with the national and local laws and regulations including the Labour Contract Law of the People's Republic of China, the Convention concerning Discrimination in respect of Employment and Occupation (《消除就業和職業歧視公約》), the Provision of the State Council on Working Hours of Workers and Staff (《國務院關於職工工作時間的規定》) and the Regulation on Public Holidays for National Annual Festivals and Memorial Days (《全國年節及紀念日放假辦法》), the Company establishes and improves the Group's relevant system and operating procedures such as the Remuneration Management (《薪酬管理》), the Recruitment Management (《招聘管理》), the Unified Holiday Management (《統一假期管理》) and the Employee Handbook (《員工手冊》), etc. The Group has and will continue to focus on equal employment opportunities, diversification of employment and anti-discrimination of employment as important issues, and will be committed to respect employee's gender, age, nationality, race, disability and religious beliefs, etc. The Group fully respects the personal dignity of individual employees, humanistic care and positive incentive, takes into account employee's personal safety, environmental safety, physical and mental health as well as career development when setting up our long term goals, and encourages the employees to uphold the principle of frankness, faithfully perform their duties and treat people and work with integrity.

In order to enhance the labour protection of female employees and juvenile workers (aged between 16-18 years old) and protect the personal health of such employees, the Group formulated the Regulations on Labour Protection of Female Employees and Juvenile Employees (《女職工和未成年工勞動保護規定》) in accordance with the Special Rules on the Labour Protection of Female Employees (《女職工勞動保護特別規定》), the Labour Protection of Female Employees in Shanghai (《上海市女職工勞動保護》) and the Special Rules on the Protection of Juvenile Employees (《未成年工特殊保護規定》). The Regulations explicitly provides that no member enterprise may lay off or dismiss female employees or reduce their wages due to marriage, pregnancy, maternity and breastfeeding reasons; no discrimination against women in staff grading, promotion and salary adjustment of industrial workers was allowed; and member enterprises must comply with the regulations related to labour protection of female employees during menstruation, pregnancy, maternity and breastfeeding and no member enterprise may hire minors under 16 years old.

#### Composition of Staff of Shanghai Electric

Staff Structure		Gender	
Year	Total number	Male	Female
2014	29261	23526	5735
2015	27310	21998	5312
2016	29293	23797	5496

Staff Structure by Age						
Year	Under 20 years old	20–30 years old	31–40 years old	41–50 years old	51–55 years old	Over 55 years old
2014	7	7712	8503	6887	3462	2690
2015	7	7197	7936	6428	3176	2566
2016	8	7704	8495	6893	3399	2794

#### ✔ Systematic Approach to Protect the Legitimate Rights and Interests of Employees and Employees' Status as the Masters of the Enterprises

In accordance with the requirements of Shanghai Municipality People's Congress and the Regulations of Shanghai Municipality on Employees' Representatives Conference (《上海市職工代表大會條例》), the Group established the staff and workers' congress system and held the first session of the Second Staff and Worker's Congress, on which the documents including the Collective Contract (《集體合同》), the Collective Wage Agreements (《工資集體協議》) and the Collective Contract on Protection of Rights and Interests of Female Employees (《女職工權益保護專項集體合同》) were voted and adopted as an effort to further improve the top design of the Group's collective consultation system. The Group also conducted a survey by questionnaires on the transparency of enterprise's affairs and democratic management of the member enterprise. Over 100 member enterprises of the Group had established systems on the transparency of enterprise's affairs and the staff and worker's congress system. The Group also urged the member enterprises to enhance transparency of enterprise's affairs and democratic management by way of the staff and worker's congress system. In 2016, the Group completed the review and appraisal of managers and cadres by the staff and workers' congress.

#### ✔ Building Harmonious Labour Relationships

In response to the new development and changes on enterprise labour relationships as a result of in-depth reform, the Group conducted research on the labour relationships of enterprises that are subject to corporate restructuring, or are in distress involving substantial down-sizing and headcount reduction or are non-state controlled joint ventures. The focuses of the research were to understand the status of implementation of Labour Law by the enterprises, the status of employee reemployment and outplacement, the employees' demands and the employee rights protection at the level of the trade unions. The Group also mobilized the relevant functional departments and the member enterprises in the Group to analyze and study the issues related to labour relationship, draw lessons and experience to provide guidance for future work. Based on the result of the research, the Group prepared research reports including the Report on Proper Resettlement of Laid-off Employees and Developing Harmonious Labour Relationship (《穩妥安置分流職工，構建和諧勞動關係》) and the Research on the Labour Relationship Condition of Restructured Enterprises and Non-state Controlled Joint Ventures (《關於轉改制企業和非控股合資企業勞動關係狀況的調研》) and the former one was published in the Shanghai Journal of Workers' Movement (上海工運研究) by the Municipality Trade Union. The Group also participated in the assessment and review on the settlement plan of laid-off employees of enterprises subject to corporate restructuring and the mediation work of collective employees labor disputes, effectively protected the legitimate rights and interests of employees. Throughout the past year, the legal aid functional department of the Group received and resolved a total of 110 cases related to non-contentious affairs, of which 75 cases involving legal advice, 4 cases of complaint by letters and 26 cases involving legal documents drafting assistance.

#### ✔ Fully Implementing Occupational Health Management Assessment

The Group implemented occupational health management assessment comprehensively. The Group invited third-party institutions to conduct assessment on the management of 58 member enterprises exposed to occupational hazards, and based on the result of assessment, the Group formulated the Evaluation Report on the Current Condition of Shanghai Electric Occupational Health Management (《上海電氣職業衛生管理現狀評價報告》). The evaluation of current status of occupational health management was a material initiative in fulfilling the corporate responsibilities, proactively avoiding risks, ensuring occupational protection and improving environmental health, which enabled the Group to identify the current status of the Group and weak points and facilitated the implementation of the three-year action plan for occupational hazard management and fundamental improvement of the occupational health condition.

Talent Building

Talents are the most important assets for an enterprise's development. Human capital is the first capital of an enterprise, especially in the era of economic globalization and rapid development in science and technology. Human resource increasingly reveals its strategic and decisive significance in the enterprise's core competitiveness. The Group has always endeavored to encourage employees to fully understand themselves and develop their potentiality as well as cultivate creative thinking. Talents development is always an important and urgent task of the Group.

Education

Year	Postgraduate or above	Undergraduate	Junior college	Secondary education or below
2014	1873	9364	6437	11587
2015	1784	9312	5884	10330
2016	2396	10400	6546	9951

Classification of Position

Year	Production staff	Sales staff	Technical staff	Financial staff	Administrative staff
2014	13694	2423	8352	739	4053
2015	12814	2523	7803	720	3450
2016	13768	2636	8495	879	3515



✔ Vigorously Building Sci-tech Talents Team

Bearing the key trend in terms of our scientific and technological scheme in mind, we initiated the recruitment campaign for selecting sci-tech experts and outstanding professionals leading sci-tech projects for the period of 2016 to 2018, and during the recruitment, we mainly focused on the candidate's scientific research abilities, his or her contribution to the industry, potential in terms of scientific research and consideration to team building, and selected the appropriate candidates in accordance with the following order of procedures, i.e. "enterprise recommendation, competent entity's examination and approval, experts' evaluation, online publication and Party committee's decision after investigation". At the same time, in accordance with development requirements for technology towards "high-end" direction and products towards "intelligent" level, we have designed, through study and research, an interconnected career development path for the selected talents with the career development phases "from talent reserve, to business backbone, to meritocrat, to foregoer, to expert and to senior expert", for which we have also established the qualification assessment standards and requirements for each phase of career development path.

✔ Vigorously Building Skilled Talents Team

Considering the special features of the equipment manufacturing industry, we are aiming to vigorously build the skilled talents team through recruitment of chief technicians both for the Group and its member enterprises, 3+3+3 skilled employees training, technician further education, establishing specialized skilled talents evaluation system. During the recruitment, we have abided by the procedures of "enterprise recommendation, competent entity's examination and approval, experts' evaluation, online publication and Party committee's decision after investigation" and have selected and recruited 27 chief technicians for the Group for the period of 2016-2018. Nearly ten thousand trainees have participated in the training program designed and dedicated for skilled employees as organized by LIBIN TECHNICIAN COLLEGE OF SEC . At the same time, we have established a systematic structure in terms of the career development path for skilled employees stipulating the threshold requirements, the comprehensive qualification requirements, the knowhow requirements, the professional skill requirements and the work result requirements.

✔ Making Efforts to Building an International Professionals Team

As guided by our internationalization strategy and merger and acquisition ("M&A") strategy, we have focused on the building of several international professionals' teams in terms of the following functions, "planning and investment, business and marketing, project management, finance, legal compliance, human resources", under which we have made efforts to build the professionals teams in respect of the strategic development and industry investment, and cultivated and trained the professionals through HPT training programs by adopting "6+3+X" advanced development model (i.e. 6-month intensive training and 3+X-month job rotation training) focusing on the training of two major modules, i.e. the "core qualities" and the "professional qualities".



## Occupational Training

We highly respect talents and hold that talent resources are the primary resources. Therefore, we continue to increase investment in various talent development programs and service programs in favor of the employees, with an aim to provide "people-oriented" service for employees and to promote the co-growth and co-development of both our employees and this Company.

### Training Investment for 2016

Total staff training investment

**RMB86,050,000**

Staff training coverage

**100%**

Per capita training time

**3.5** days

### ✔ Strengthening and Improving the Management Training System

The progression path of the management training program is unclear, for which, we have perfected and formed a training program progression system consisting of the young and mid-aged cadres training programs, the new leaders training programs and the leaders competence enhancement programs through focusing on the leadership team deputy reserve, the new cadres and leadership team principal reserve. At the same time, we have developed targeted training course package taking the features of the programs and the training participants into consideration, and such developed targeted courses account for nearly half of all the training courses.

### ✔ Carrying out Multi-discipline Business Training

Through a number of professional trainings in respect of multi-discipline sections such as accounting, letters and visits, legal affairs, patent, international talents, finance, quality and trade unions, we constantly consolidate the theoretical basis of the business employees of each business line, and jointly set up training courses with external entities including BEIH (京能集團) and Guohua Electric Power (國華電力), so as to cultivate all-round professional technicians.

### ✔ The First Batch of International Talents Going Out of Classroom

Abiding by our international strategy and in order to promote the international sales and services, construct an international operating system and facilitate the expansion of overseas market, as of this year, we have organized and carried out international talent training programs. Training participants are from the related departments in respect of technology and projects, and they are able to get adapted to new environment, good at foreign language and familiar with corporate products. During the training, the Group has engaged experienced instructors for the training participants, carrying out the international operating management training in respect of marketing, contract risk, customer relationship and project management, and let them participate in daily business work of engineering companies to clearly understand the work scope, systems and processes and other aspects of overseas engineering. Before for the commencement of their internship abroad, the participants are also involved in the project management and project performance process such as the project bidding.

### ✔ Taking well the Road of Quality and Efficiency

The Group holds financial seminars for general managers, helping them to form a wholly new operator's financial thinking, pay attention to the management improvement factors behind financial data, correctly understand the enterprise operating information disclosed by the three major financial statements and systematically understand the enterprise financial operating system, analysis methods and focuses of management control. Under the increasing economy downward pressure, the Group shall pay special attention to financial management, which is one of the keys to actively and steadily respond to various changes, consolidate assets, control risks, maintain healthy development state and adopt the road of quality and efficiency, and give full play to the significance of financial analysis and financial management in an enterprise's operational decision-making.



### ✔ Exploring a New Pattern of Combining Work and Study

As our brand work, "3+3+3" skilled workers training has developed for eight years, and it has become, from program design to practice, a mature mechanism of cultivating highly skilled talents by school enterprise cooperation with distinctive characteristics, remarkable results and social recognition. "3+3+3" training set up demand oriented professional courses and corporate's own curriculum, implemented the system of "double tutor" of schools and enterprises, and combined with the graduation designs of actual position, providing about 560 highly skilled talents for the Group.

### ✔ Wind Power Group's (風電集團) In-house Training

In order to deepen the employees' understanding of wind power products technology, Wind Power Group adopted the model of "customised courses" and "going out" to carry out the technology sharing activities of large parts of products. For example, the training instructor team which is composed of over 20 professional engineers treated employees from various departments as "internal customers" and fully consulted them in respect of their needs before development of the courses. The team comprehensively analysed the basic structure of wind turbine components, the working principle and the common problems of procurement, inspection and production, and introduced the design and development of each component, the standards for procurement that follow and application methods in detail. What's more, the team also established a network video conferencing platform, so that employees from Lingang, Bei'an and other manufacturing bases can participate in discussion and study.



Team Building

It was not possible to have development without employees' contribution and participation, their exploration and creation, their passion and wisdom, as well as their concerted efforts. We will create a bright future with the creators.



The picture above  
Run with "Nuclear"

The picture on the right  
Corporate Culture Graffiti Wall

The picture below  
The Spring Festival's Atmosphere in Various Canteens



Run with "Nuclear"

On 4 January 2016, the Nuclear Power Group initiated the Long Distance Running and Fitness Month with the theme of "Run with 'Nuclear' in 2016". This outdoor activity attracted more than 1,100 employees to join. The purpose of this activity is to vigorously encourage all employees to keep fit, advocate a scientific and healthy way of life, and guide employees to live and work with a positive and energetic state of mind.



Corporate Culture Graffiti Wall

Several young employees of Shanghai Boiler Works created "graffiti wall" with their brushes. As there were a lot of art lovers in this plant, we arranged and organised several young employees who are good at painting to work out creative coloured drawings on those "graffiti walls" (which are specially set up by us for employees' creation) in terms of the theme of corporate culture, core values and quality ideas, through which, those young employees' creative talents are well demonstrated, the plant full of equipment and machines has acquired a completely new outlook and our corporate culture has also been well advertised leaving a deep impression to all the employees.

The Spring Festival's Atmosphere in Various canteens

The Lantern Festival is known as the "finale" of the Chinese Spring Festival. As Chinese, we usually eat dumplings on the Lantern Festival, therefore not only for enterprises in Shanghai, but also for some overseas project departments and wind power project departments in remote areas, we have all arranged the relevant employees to enjoy dumplings. For example, more than 30 employees of the project department in Balingian, Malaysia of Shanghai Electric Power Generation Engineering Company (上海電氣電站工程公司) made dumplings with their own hands after work, and the manager of Bailing Temple Wind Farm Project in Inner Mongolia drove for an hour to the nearby town to buy dumplings for employees.

3.4 Responsibility towards Community

Upholding the concept of "making progress together and promoting the harmonious development of society", we actively fulfilled our social responsibility by carrying out poverty reduction and public benefit programs by encouraging and guiding our employees to be dedicated to various public benefit programs and activities, with an aim to boost the co-development of SEC and the whole society.

Public Welfare Affairs

A Christmas Event by Shanghai Electric Power Transmission & Distribution Group (SEC T&D Group).

In order to better highlight the positive energy among Communist Party members, and encourage them to do some useful things and convey the idea of love, the Communist Party of SEC T&D Group has organised some Communist Party members to carry out a special Christmas event for those children staying in Xinhua Hospital's pediatric inpatient department in the morning of 24 December 2016.

On that day, dozens of Communist Party members came to the cardiovascular division and neurological section under the guidance of the hospital's social workers. In order to let the children in hospital enjoy the Christmas, two Communist Party members put on Santa Claus costumes and bear costumes, then walked around more than twenty wards to send elaborate Christmas gifts to the kids and satisfied all requests from children for taking photos and playing games until the kids showed a happy face with smile of satisfaction.



SEC T&D Group carried out heart-warming Christmas activities



Popularisation of nuclear power science:kids had a closer look of the equipment

Activity to Popularize Nuclear Power Science with the Kids in Close Contact with Equipment

As March 28 is the World Energy Day, the Nuclear Power Group invited 30 children around 10 years old on its regular Open Day for Science to have a closer look of the manufacture of the nuclear power equipment. Volunteers on-site explained terminologies using simple and vivid words for those children to have a better understanding. For example, volunteers explained that the weight of the 600-ton steam generator is almost the total weight of 120 African elephants, giving a direct impression for children and all the children are delighted in knowing this.

New Year's Gifts from Lovely Children

"Here are the New Year's gifts for our elder brothers and sisters, please accept" Ms. Chen Lingping, one of the founders of the "Blue Harbour" Autism Mutual Help Centre (藍色港灣"自閉症互助中心) in Shanghai, came to express their gratitude with handicrafts and thanksgiving letters made by the children with autism. The Wind Power Group organised a long-distance running activity for fund-raising named as "Running Lei Feng" for advocating volunteers to show their love by running. This activity raised RMB5,790 for charity which were then donated to the "Blue Harbour". In the year since then, volunteer representatives of the Wind Power Group participated in reporting performances, charity sale and other charity activities of the "Blue Harbour" Autism Mutual Help Centre.



Community Construction

Committed to Poverty Reduction (Zhuanghang Town)

In 2014, 16 enterprises of our Group entered into poverty reduction agreement with 16 villages in Zhuanghang Town respectively. Since then, in addition to cash donation, we also helped villagers to resolve issues in relation to the sale of their pears, eggs and other agricultural and sideline products, which actually increased farmers' income. Our financial contribution has helped to improve the rural infrastructure with direct connection of cement roads to the fields. In future, we will work more in-depth on the foundation laid earlier, further provide assistance in all aspects and fulfil our responsibilities towards the society through two-way interactions to achieve the goal of more understanding and more support.

"1+1" Environmental Protection Micro Public Welfare Activities

On 3 March, young environmental volunteers from integrated management department came to the community of Dongfeng 3 Village in Jiangchuan Street, and participated in the activity of "Learning from Lei Feng, Service for People" as organized by the community. Volunteers made environmental protection advertising boards and advertising materials and promoted "civilised dog keeping", "recovery of used batteries", "garbage classification" and other knowledge about environmental protection to community residents. The fun games and distribution of promotional gifts attracted many community residents to actively participate in the event. While promoting knowledge about environmental protection, Shanghai Mitsubishi conveyed their long-established concept of public welfare of fulfilling corporate social responsibility towards the community.

Balingian Project Department Assisted Local Residents

June 1 and 2 of each year is the largest annual festival in Sarawak, Malaysia - the Harvest Festival. On the eve of the "Harvest Festival", Balingian project department of power plant engineering company celebrated the "Harvest Festival" with local residents. Balingian Project is the first EPC project of Shanghai Electric Power Generation Engineering in Malaysia. Since the commencement of Project construction last year, the project department actively strengthened communication and exchange of views with local residents, which helped to change local residents' minds from confusion and resistance to large industrial projects at the beginning to understanding and acceptance of such project construction eventually. On 25 May, representatives of the project department held a party with students and teachers in a local primary school to celebrate the "Harvest Festival". The fire extinguishers, desks and chairs and other supplies the project department donated were well received by teachers and students.

The picture on the left  
"1+1" Environmental Protection  
Micro Public Welfare Activities  
  
The picture on the right  
Balingian Project Department  
Assisted Local Residents



The picture above  
Clothes Donations Collected via WeChat  
Delivered to Children in Sichuan

Wheelchairs Donations Worth RMB30,000  
by Denso

Shanghai Denso Fuel Injection Co., Ltd donated a batch of wheelchairs worth RMB30,000 to Fengpu Nursing Home in Fengxian District. The donation of wheelchairs was part of Denso Company's charity activities with the theme of "Spreading Universal Love and Giving Back to Society". In the course of continuing advancement of our civilized society, the Group hopes all of its employees and the Group per se can on one's own initiative carry out charitable actions and do charity. On the same day, Denso was awarded the title of "2016 Fengpu Advanced Unit of Charity" (2016年度奉浦慈善先进单位) by Fengpu Community in Fengxian District and Shanghai SCIDZ Co., Ltd.(上海市工业综合开发有限公司).

Helping 2,000 Physically Disabled Persons  
Go out from Home

The Group has donated RMB 965,000 to the China Foundation for Disabled Persons at the donation ceremony of the Charity Project helping the disabled go out from their home by Shanghai Electric (集善工程(上海电气)助行行动) to provide high quality wheelchairs for 2,013 physically disabled persons from 15 provinces, regions and cities, helping them to go out from their home. The Group well implemented the State's targeted poverty alleviation strategy and actively fulfilled the Group's social responsibilities by donation for the said charity project aiming to help the disabled go out from their home. To facilitate and help the physically disabled to participate in social life and further to encourage them to go out from their home and be integrated into social life is the Group's wishes to assume its social responsibility and make more contributions towards the disabled person undertakings and the social construction at the same time of the progressive development of the enterprise.

Public Donation

Public Donations in the sum of RMB 5.505 million in 2016

Clothes Donations Collected via WeChat  
Delivered to Children in Sichuan

"The lives of these children are too hard ..." A video on WeChat which reposted by the party branch of gas turbine workshop in Shanghai Turbine Works Co., Ltd. caused widespread sympathy among employees. Within only two weeks, unsolicited donations of clothes, books and other supplies by employees reached more than 100 KG. After finishing packaging, volunteers sent them to Yanjing Town, Yanyuan County, Liangshan Prefecture of Sichuan Province.

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Chapter Four Achieving Sustainable Development Together with Vision

# 04

## Achieving Sustainable Development Together with Vision

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Premier Li Keqiang pointed out in Report on the Work of the Government (2017) that we should intensify efforts to strengthen environmental protection, and we will make our skies blue again. As a green energy manufacturer, we advocate environmental protection, pay attention to ecological balance, and are willing to fight for building a harmonious ecological home. We are pushing ahead in the process of seeking sustainable development of economic, social, environmental and resource development, fighting for our blue skies, and Shanghai Electric's "Green Transformation" is always on the way!





4.1 Environment Management

We always adhere to the green development, continuously improve the environmental protection and energy saving and emission reduction management system, increase energy saving and environmental protection investment, achieved consecutive drops in pollutant emissions and resource consumption, and set an example in terms of green development for the industry.

Environmental Performance

We focus on continuous improvement of environmental protection and environmental protection work.

We have built a sound system to carry out safe production and environmental protection management works at the same time, and we revised the Shanghai Electric Safety Production and Environmental Protection Management System (《上海電氣安全生產、環境保護管理制度》), which sets out the Group's management policies and objectives.

We formulated plans to promote and develop Shanghai Electric ‘13th Five-year’ Safety, Environmental Protection Development Plan (《上海電氣“十三五”安全、環保發展規劃》), clarifying the five-year plans and measures; promoting "clean production" audit work with unremitting efforts; organised a Survey on Air Pollution Emission and Control in Major Industries of Shanghai (《上海市工業重點行業大氣污染排放和治理情況調查》); carried out Environmental Protection Law and the Shanghai Environmental Protection Regulations learning and Environment Day activities.

In order to clarify responsibilities, environmental protection responsibility memoranda are entered into between Shanghai Electric and Minhang District Government, to strengthen communication and coordination with the government, handle environmental issues properly and implement government and enterprise linkage.

Shanghai Electric's Environmental Performance Indicators:

Environmental performance indicators	2014	2015	2016
Total environmental protection investment (RMB'0,000)	2,485	4,816	4,796
Energy consumption per unit of output value (tons of standard coal/RMB'0,000)	0.0339	0.0287	0.0288
Water consumption per unit of output value (tons of water/RMB'0,000)	0.6183	0.6975	0.6795
Exhaust emissions ('0,000m3)	303,036	178,572	203,100
Waste water discharge (tons)	4,533,505	4,086,800	3,716,908
Slag discharge (tons)	6,330	5,903	5,558
Comprehensive utilization rate of Three Wastes (%)	68.51	71.51	45.51
Greenhouse gas emissions(tons)	72,623	68,764	71,172

We strictly comply with:

- The Production Safety Law of the People's Republic of China (《中華人民共和國安全生產法》)
- The Environmental Protection Law of the People's Republic of China (《中華人民共和國環境保護法》)
- The Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste (《中華人民共和國固體廢棄物污染環境防治法》)
- The Regulation on the Safety Management of Radioactive Waste (《放射性廢棄物安全管理條例》)
- The Management Measures on Major Pollutants Discharge Permit in Shanghai (《上海市主要污染物排放許可證管理辦法》)
- The Regulations on Hazardous Waste Pollution Prevention and Control in Shanghai (《上海市危險廢物污染防治辦法》)
- The Regulations of Shanghai Municipality on the Administration of City Appearance and Environmental Sanitation (《上海市市容環境衛生管理條例》)

In order to strengthen the treatment demands on disposal of waste gas, solid waste, waste water, and prevent environmental pollution during the disposal process, we have formulated the following systems:

- The Implementation Regulations of the Solid Waste Management (《固體廢棄物管理實施細則》)
- The Implementation Regulations of the Safety Production and Environmental Protection (《安全生產環境保護實施細則》)



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Shanghai Electric attaches importance to the disposal and discharge of Three Wastes, and proper disposal and discharge of Three Wastes being steadily in compliance with required standards are basic requirements for each manufacturing member enterprise. Waste water after treatment shall meet with the discharge standards, and waste gas that met standards after collection and treatment can be discharged into the air. The treatment of hazardous wastes generated by member enterprises in the production process has been entrusted to qualified environmental protection companies with which treatment entrustment agreements have been signed and the relevant treatment processes are in line with the relevant regulations for hazardous waste disposal. In addition, we are actively promoting the replacement of hazardous waste products, such as using specialized cleaning fluid instead of gasoline, acetone and others to clean machine surface so as to minimize the production of waste.



Industrial Manufacturing Enterprises' Waste Gas and Waste Water Discharge

Enterprises	Exhaust emissions ('0,000 m3)			Waste water discharge ('0,000 m3)		
	2014	2015	2016	2014	2015	2016
Shanghai Electric Group Shanghai Electric Machinery Co., Ltd.	7,671.37	5,454.116	2,920.9333	939,165.3	880,898.4	678,577.5
Shanghai Boiler Works, Ltd.	375.347	308.16	77.9566	392,497.2	286,010	210,355
Shanghai Turbine Works Co., Ltd.	3.069	3.805	2.486	1,258,131	1,251,650	1,107,700
Shanghai Power Station Auxiliary Equipment Works Co., Ltd.	0	0	0	320,190	212,750	160,502
Shanghai Yida Machinery Co., Ltd.	2	2	2	16,394	21,975	21,890
Shanghai Electric Wind Power Group Co., Ltd.	0	0	0	0	0	14,955
Shanghai Electric Wind Power Equipment Dongtai Co., Ltd.	0	0	0	0	0	16,000
Shanghai Electric Wind Power Heilongjiang Co., Ltd.	0	0	0	1,800	1,750	1,660
Shanghai Electric KSB Pump Co., Ltd.	11.2	10.6	13.2	215,456	185,694	171,032
Shanghai Electric-KSB Nuclear Pumps & Valves Co., Ltd.	0	0	0	5,109	6,274	3,943
Shanghai No.1 Machine Tool Works Co., Ltd.	54.37	14.89	33.29	103,500	121,600	126,000

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Enterprises	Exhaust emissions ('0,000 m3)			Waste water discharge ('0,000 m3)		
	2014	2015	2016	2014	2015	2016
Shanghai Electric Nuclear Power Equipment Co., Ltd.	5.004	3.03219	3.7985	24,790	28,148	31,491
Shanghai Mitsubishi Elevator Co., Ltd.	1,209.57	1,276.885	1,079.309	139,778.1	112,688.1	99,510.3
Shanghai Cimic Welding Consumables Co., Ltd.	0.58	0.673	0.413	63,000	87,333	61,660
Shanghai Electric Hydraulics & Pneumatics Co., Ltd.	0	0	0	11,424	9,403	8,161
Shanghai Renmin Electrical Apparatus Works	81.2357	72.3635	77.184	78,755	74,615	74,854
Shanghai Nan Qiao Transformer Co., Ltd.	0	0	0	8,740	8,294	8,568
Shanghai Electric Power Electronics Co., Ltd.	0	0	0	2,563	4,844	10,558
Shanghai Najie Electrical Complete Sets Co., Ltd.	0	0	0	11,660	15,451	9,308
Shanghai Nanhua-Lanling Electric Co., Ltd.	0	0	0	35,987.3	37,728.9	38,088
Shanghai Dahua Electrical Equipment Co., Ltd.	0	0	0	11,719	10,339	12,167
Shanghai Feihang Electric Wire and Cable Co., Ltd.	0	0	0	43,890.3	47,842.2	63,378.9
Shanghai Jiejin New Electric Materials Co., Ltd.	0.55	0.55	0.55	0	0	0
Wujiang Transformer Co., Ltd.	36,800	57,100	38,720	0	0	0
Shanghai Electric Milling Equipment Co., Ltd.	0	0	1.699	0	0	532,406
Shanghai Electric Shanghai Heavy Machinery Forging Co., Ltd.	0	0	147,346.98	0	0	661,754.7
Shanghai Ship-use Crankshaft Co., Ltd.	1	1	1	10	10	8
SNJ Valve Co., Ltd.	5,245	6,258	7,940	27,398.7	18,135	15,072.3
Shanghai Fanuc Robotics Co., Ltd.	0	0	0	16,630	27,995	25,007
Shanghai Centrifuge Institute Co.,Ltd.	0	0	0	12,371	19,212	11,436
Shanghai Capital Numerical Control Co., Ltd.	0.000334	0.000378	0.000359	2,772.9	1,873.8	1,617.75
Shanghai Machine Tool Works Co., Ltd.	0	0	0	100,807.2	82,834.2	97,866.9
Shanghai Blower Works Co., Ltd.	0	0	0	155,700	149,087	83,520
Shanghai Denso Fuel Injection Co. Ltd.	9,800	7,872	7,800	52,256.7	45,443.7	36,438.3

\*In recent years, the Group improved environmental protection technology measures and improved production processes, and production units have fully abolished coal-fired boilers, which made emissions from stationary sources greatly reduced.





Discharge of slag, three wastes and greenhouse gas from industrial production enterprises

Enterprise	Discharge of slag (tons)			Comprehensive utilization rate of the three wastes			Emission of greenhouse gas (tons)		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Shanghai Electric Group Shanghai Electric Machinery Co., Ltd.	2,227.3	2,326.3	1,909.3	96.18%	91.74%	94.91%	53.771	51.023	61.185
Shanghai Boiler Works, Ltd.	4,504.9	4,237.5	3,842.9	14%	13.66%	13.66%	37,256	31,646	33,553
Shanghai Turbine Works Co., Ltd.	1,000	1,000	950	100%	100%	100%	0	0	0
SEPG Shanghai Generator Works	245.4	106.85	104.8	0	0	0	0	0	0
Shanghai Yida Machinery Co., Ltd.	4	4.4	4.5	0	0	0	0	0	0
Shanghai Electric KSB Pump Co., Ltd.	0.8	0.8	0.5	0	0	0	0	0	0
SEC-KSB Nuclear Pumps &Valves Co., Ltd.	146.2	124.54	111.62	0	0	0	0	0	0
Shanghai No. 1 Machine Tool Works Co., Ltd.	72	87	63	0.07%	0.07%	0.05%	0	0	0
Shanghai Electric Nuclear Power Equipment Co., Ltd.	0	0	0	0	0	0	4.9773	3.016	3.7985
Shanghai Mitsubishi Elevator Co., Ltd.	0	0	0	0	0	0	34,616	36,021	36,206
Shanghai Renmin Electrical Apparatus Works	168	165	162	0.04%	0.03%	0.03%	0	0	0
Shanghai Nanhua-Lanling Electric Co., Ltd.	0.2	0.2	0	0	0	0	0	0	0
Shanghai Feihang Electric Wire and Cable Co., Ltd.	0.15	0.13	0.12	0	0	0	0	0	0
Shanghai Electric Milling Equipment Co., Ltd.	0	0	160	0	0	0	0	0	0
Shanghai-Fanuc Robotics Co., Ltd.	0	0	0	0	0	0	746.51	1,093.6	1,409
Shanghai Denso Fuel Injection Co., Ltd.	6	12	10	0	0	0	0	0	0

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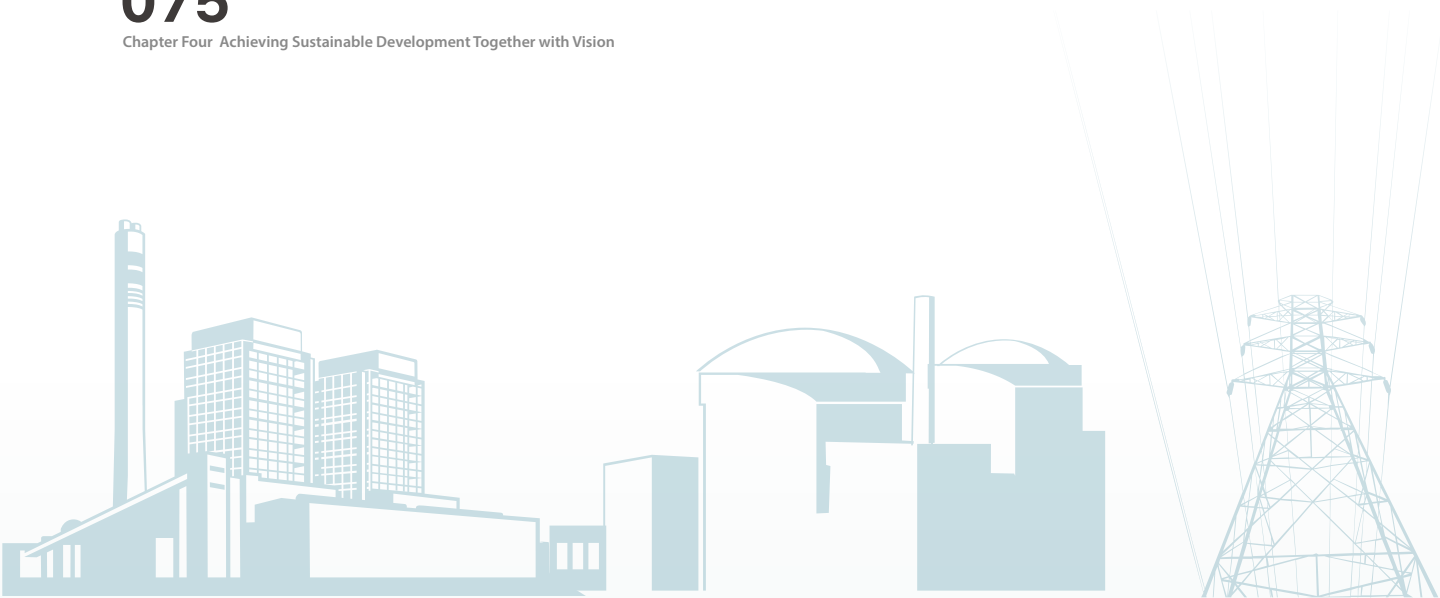
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Disposal of Hazardous Wastes from Industrial Production Enterprises

Ways Hazardous Wastes Discharged in 2016 (tons)					
Enterprise	Reuse	Incineration	Landfill	Disposal through authorized third party	Others
Shanghai Electric Group Shanghai Electric Machinery Co., Ltd.	0	0	0	97.2	0
Shanghai Boiler Works, Ltd.	0	0	0	52.9415	0
Shanghai Turbine Works Co., Ltd.	0	0	0	900	0
Shanghai Power Station Auxiliary Equipment Works Co., Ltd.	0	0	0	9	0
SEPG Shanghai Generator Works	0	0	0	104.8	0
Shanghai Yida Machinery Co., Ltd.	6.8	0	0	42	0
Shanghai Electric Wind Power Group Co., Ltd.	0	0	0	0.385	0
Shanghai Electric Wind Power Equipment Dongtai Co., Ltd.	0	0	0	12	0
Shanghai Electric KSB Pump Co., Ltd.	0	0	0	32	0
SEC-KSB Nuclear Pumps & Valves Co., Ltd.	0	0	0	32.42	0
Shanghai No. 1 Machine Tool Works Co., Ltd.				173.45	
Shanghai Electric Nuclear Power Equipment Co., Ltd.	0	0	0	49.13	0
Shanghai Mitsubishi Elevator Co., Ltd.	0	0	0	484.46	0
Shanghai Cimic Welding Consumables Co., Ltd.	0	0	0	23	0
Shanghai Electric Hydraulics & Pneumatics Co., Ltd.	0	0	0	10.35	0
Shanghai Renmin Electrical Apparatus Works	0	0	0	3	0
Shanghai Nan Qiao Transformer Co., Ltd.	0	0	0	5	0
Shanghai Nanhua-Lanling Electric Co., Ltd.	0	0	0	9.498	0

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Ways Hazardous Wastes Discharged in 2016 (tons)					
Enterprise	Reuse	Incineration	Landfill	Disposal through authorized third party	Others
Shanghai Dahua Electrical Equipment Co., Ltd.	0	0	0	0.3	0
Shanghai Feihang Electric Wire and Cable Co., Ltd.	0	0	0	0.39	0
Shanghai Jiejin New Electric Materials Co., Ltd.	0	0	0	5.595	0
Wujiang Transformer Co., Ltd.	0	0	0	11.3	0
Shanghai Electric Milling Equipment Co., Ltd.	0	0	0	2.48	0
Shanghai Electric Shanghai Heavy Machinery Forging Co., Ltd.	0	0	0	2.03	0
Shanghai Ship-use Crankshaft Co., Ltd.	2	0	0	8	0
SNJ Valve Co., Ltd.	0	0	0	43.12	0
Shanghai-Fanuc Robotics Co., Ltd.	0	0	0	3.5	0
Shanghai Centrifuge Institute Co., Ltd.	0	0	0	1	0
Shanghai Capital Numerical Control Co., Ltd.	0	0	0	0.23	0
Shanghai Machine Tool Works Ltd.	0	0	0	9.5	0
Shanghai Blower Works Co., Ltd.	0	0	0	3.3	0
Shanghai Denso Fuel Injection Co., Ltd.	0	0	0	6	0



## Discharge of Air Pollutants and Water Pollutants from Industry Production Enterprise

Enterprise	Emission of air pollutants in 2016 (tons)				Discharge of water pollutants in 2016 (tons)					
	Nitrogen oxides	Sulfur oxides	Particulates	Volatile organic compounds	Total annual drainage capacity (tons)	Total annual COD discharge (tons)	Total annual ammonia nitrogen discharge (tons)	pretreatment in sewage treatment station before discharge	Discharge through urban pipe network	Compliance with discharge standards
Shanghai Electric Group Shanghai Electric Machinery Co., Ltd.	0.936	0	0.0792	25.02	678,578	22.39	0.017	Yes	Yes	Yes
Shanghai Boiler Works, Ltd.	5.996	2.19	0.656	69.1146	210355	5.955	2.335	Yes	Yes	Yes
Shanghai Turbine Works Co., Ltd.	0.501	1.091	0.8943	5.22	1107,700	71.9	6.6	Yes	Yes	Yes
Shanghai Power Station Auxiliary Equipment Works Co., Ltd.	0	0	0	0	160,502	27	1.05	Yes	Yes	Yes
SEPG Shanghai Generator Works	0	0	0	0	0	0	0	Yes	Yes	Yes
Shanghai Yida Machinery Co., Ltd.		5			21,890	0	0	No	Yes	Yes
Shanghai Electric Wind Power Group Co., Ltd.	0	0	0	0	14,955	1.72	0.13	No	Yes	Yes
Shanghai Electric Wind Power Equipment Dongtai Co., Ltd.	0	0	0	0	16,000	0	0	No	Yes	Yes
Shanghai Electric Wind Power Heilongjiang Co., Ltd.	0	0	0	0	1,660	0	0	No	Yes	Yes
Shanghai Electric KSB Pump Co., Ltd.			0.17	0.029	171,032	11.04	1.01	Yes	Yes	Yes
SEC-KSB Nuclear Pumps & Valves Co., Ltd.	0	0	0	0	3,943	279.2	38.7	No	Yes	Yes
Shanghai No. 1 Machine Tool Works Co., Ltd.	45.7	0.244			126000	11.34	1.638	No	Yes	Yes
Shanghai Electric Nuclear Power Equipment Co., Ltd.	3.7937	0.0048	0	0	31491	284.6	32.278	No	Yes	Yes
Shanghai Mitsubishi Elevator Co., Ltd.	1.482	0.003	0	0	99,510.3	10.4275	1.0277	Yes	Yes	Yes
Shanghai Cimic Welding Consumables Co., Ltd.	0	0	0.413	0	61,660	0	10.9	No	Yes	Yes
Shanghai Electric Hydraulics & Pneumatics Co., Ltd.	0	0	0	0	8,161	0.46	0.04	Yes	Yes	Yes
Shanghai Renmin Electrical Apparatus Works	0.12	0	0.0137	0	77,936	0	0	Yes	Yes	Yes
Shanghai Nan Qiao Transformer Co., Ltd.	0	0	0	0	8,568	0	0	Yes	Yes	Yes

	Emission of air pollutants in 2016 (tons)				Discharge of water pollutants in 2016 (tons)					
Enterprise	Nitrogen oxides	Sulfur oxides	Particulates	Volatile organic compounds	Total annual drainage capacity (tons)	Total annual COD discharge (tons)	Total annual ammonia nitrogen discharge (tons)	pretreatment in sewage treatment station before discharge	Discharge through urban pipe network	compliance with discharge standards
Shanghai Electric Power Electronics Co., Ltd.	0	0	0	0	10,558	0	0	Yes	Yes	Yes
Shanghai Najie Electrical Complete Sets Co., Ltd.	0	0	0	0	9,308			No	Yes	Yes
Shanghai Nanhua–Lanling Electric Co., Ltd.					38,088	2.9	0.23	No	Yes	Yes
Shanghai Huapu Cable Co., Ltd.	0	0	0	0	19,257	0	0	Yes	Yes	Yes
Shanghai Dahua Electrical Equipment Co., Ltd.					12,167	0	0	Yes	Yes	Yes
Shanghai Feihang Electric Wire and Cable Co., Ltd.	0	0	0	0	63,378	7.1	0.84	No	Yes	Yes
Shanghai Jiejin New Electric Materials Co., Ltd.	0	0	0	0.55	1.98	0	0	Yes	Yes	Yes
Shanghai Electric Milling Equipment Co., Ltd.	0	0	1.149	0.55	532,406	0	0	Yes	Yes	Yes
Shanghai Electric Shanghai Heavy Machinery Forging Co., Ltd.	30.28	6.47	15.06	0	661,755	42.99	0.88	Yes	Yes	Yes
Shanghai Institute of Machine Building Technology Co., Ltd.					1,200			Yes	Yes	Yes
Shanghai Ship–use Crankshaft Co., Ltd.	0	0	0	0	12,000	0	0	Yes	Yes	Yes
SNJ Valve Co., Ltd.			0.04	1.74	15,072	1.2	0.2	Yes	Yes	Yes
Shanghai–Fanuc Robotics Co., Ltd.	0	0	0	0	25,007	1.5	0.25	No	Yes	Yes
Shanghai Centrifuge Institute Co., Ltd.	0	0	0	0	12,707	0	0	/	Yes	Yes
Shanghai Capital Numerical Control Co., Ltd.	0	0	0	0	1,797.5	0.3777	0.06	/	Yes	Yes
Shanghai Machine Tool Works Co., Ltd.	0	0	0	0	97,866	3.58	0.319	Yes	Yes	Yes
Shanghai Blower Works Co., Ltd.	0.1482	0	0	0	0	0	0		Yes	Yes
Shanghai Denso Fuel Injection Co., Ltd.	0.0035	0	0	0	40,487	8	0.6	Yes	Yes	Yes



Reduce Costs and Increase Efficiency

The Group has strived to reduce the resource consumption during the process of production and operation, eliminate and reduce environmental pollution. We have developed the group's green competitiveness based on low carbon and high-efficiency operating model while achieving outstanding performance.

As to energy efficiency management, we have strictly abided by relevant laws and regulations and government rules such as Energy Conservation Law of the People's Republic of China (《中華人民共和國節約能源法》); Measures for the Administration of Industrial Energy Conservation (《工業節能管理辦法》) and Measures for Cleaner Production Review (《清潔生產審核辦法》). The group member entities have formulated management systems and requirements on energy conservation to further strengthen the energy conservation management of the industrial enterprises within the Group, promote energy-saving technological advancement, improve energy efficiency of energy-consumed products as well as promote energy efficient products; reasonably adjusted industry structure, enterprise structure, product structure, and reduced energy consumption per output value and per unit product and ensure more efficient and reasonable use of resources.

The total power consumed by industrial production of Shanghai Electric for 2016:			
Energy Type	Gas ('0000 m3)	Petroleum (tons)	Electricity ('0000 kwh)
Consumption	2553.29	3383.71	32782.62

Energy Consumption of Industrial Production Enterprises

Enterprise	Energy consumption per unit of output value (tons of standard coal/RMB'0000)			Water consumption per unit of output value (tons of water/RMB'0000)		
	2014	2015	2016	2014	2015	2016
Shanghai Electric Group Shanghai Electric Machinery Co., Ltd.	0.0395	0.0378	0.0341	3.1264	3.2817	2.6832
Shanghai Boiler Works, Ltd.	0.0167	0.0137	0.0147	0.3	0.2	0.3
Shanghai Turbine Works Co., Ltd.	0.1963	0.0196	0.02	2.14	1.6	1.2
Shanghai Power Station Auxiliary Equipment Works Co., Ltd.	0.078	0.076	0.074	1.42	1.36	1.35
SEPG Shanghai Generator Works	0.0172	0.01721	0.0172	0.25307	0.34343	0.36046
Shanghai Yida Machinery Co., Ltd.	0.02	0.02	0.02	0.36	0.44	0.42
Shanghai Electric Wind Power Group Co., Ltd.	0	0	0.0032	0	0	0.1024
Shanghai Electric Wind Power Equipment Dongtai Co., Ltd.	0	0	0.0006	0	0.02625	0.0583
Shanghai Electric Wind Power Heilongjiang Co., Ltd.	0	0	0.1	0.04	0.13	0.03

Enterprise	Energy consumption per unit of output value (tons of standard coal/RMB'0000)			Water consumption per unit of output value (tons of water/RMB'0000)		
	2014	2015	2016	2014	2015	2016
Shanghai Electric KSB Pump Co., Ltd.	0.02720408	0.026396682	0.02760099	2.51837	2.13675	1.79614
SEC-KSB Nuclear Pumps & Valves Co., Ltd.	0.0142	0.0038	0.0246	0.1584	0.1651	0.1517
Shanghai No. 1 Machine Tool Works Co., Ltd.	0.0195	0.0128	0.0211	1.98	1.57	2.33
Shanghai Electric Nuclear Power Equipment Co., Ltd.	0.0302	0.0345	0.0686	0.138	0.181	0.313
Shanghai Mitsubishi Elevator Co., Ltd.	0.0076	0.0075	0.0075	0.089	0.067	0.059
Shanghai Cimic Welding Consumables Co., Ltd.	1.4	1.13	0.16	2.16	1.64	2.71
Shanghai Electric Hydraulics & Pneumatics Co., Ltd.	0.055	0.062	0.056	0.33	0.22	0.221
Shanghai Renmin Electrical Apparatus Works	0.000317	0.000412	0.000427	0.1607	0.3601	0.3247
Shanghai Electric Ceramic Works Co., Ltd.	0.0059	0.0069	0.0085			
Shanghai Nan Qiao Transformer Co., Ltd.	0	0	0	0.8	0.85	0.9
Shanghai Electric Power Electronics Co., Ltd.	0.0019	0.0031	0.0078	0.00641	0.1078	0.3317
Shanghai Najie Electrical Complete Sets Co., Ltd.	0.0039	0.00047	0.0051	0.25	0.37	0.23
Shanghai Nanhua-Lanling Electric Co., Ltd.	0.007	0.01	0.009	0.46	0.58	0.82
Shanghai Huapu Cable Co., Ltd.	0.011	0.01	0.014	1.75	1.54	1.94
Shanghai Dahua Electrical Equipment Co., Ltd.				0.225	0.198	0.228
Shanghai Feihang Electric Wire and Cable Co., Ltd.	0.0061	0.0069	0.0077	0.3826	0.4421	0.7392
Shanghai Jiejin New Electric Materials Co., Ltd.	0.042	0.021	0.024	0.0004	0.0003	0.0003
Wujiang Transformer Co., Ltd. (吳江變壓器有限公司)	0.007	0.011	0.01	0.73	1.43	0.73
Shanghai Electric Milling Equipment Co., Ltd	0	0	0.04	0	0	7.986
Shanghai Electric Shanghai Heavy Machinery Forging Co., Ltd.(上海電氣上重鑄鍛有限公司)			1.1517			23.28
Shanghai Institute of Machinery Building Technology Co., Ltd.	0.0381	0.0477	0.0694	1.17	1.31	1.46
SNJ Valve Co., Ltd.	0.016	0.028	0.041	1.407	1.768	2.714
Shanghai- Fanuc Robotics Co., Ltd.	0.0007	0.001	0.001	0.11	0.17	0.13
Shanghai Capital Numerical Control Co., Ltd.	0.03	0.04	0.03	0.63	0.46	0.28
Shanghai Machine Tool Works Ltd.	0.0335	0.0383	0.0497	1.81	2.11	3.29
Shanghai Denso Fuel Injection Co. Ltd.	0.0523	0.0653	0.0638	0.76	0.65	0.63



✔ Costs in Power Generation Group to Come Down by 20% in the Next 5 Years

Shanghai Electric Power Generation Group is gradually shifting mainly from reducing costs through purchasing to reducing costs through technology and management. The manufacturing factories propose to reduce costs by 20% on the base of the cost in 2015. In order to achieve that goal, manufacturing enterprises will further improve the organization system of the reducing cost management and set up specific objectives and requirements for engineering, services and new industries as well as specific measures and management system for lowering cost. The functional departments of the Power Generation will undertake the cost-reducing target of each line simultaneously. According to the requirements to centralize management and controls at group level, factories will become “costs centers” and each factory and new industry should build up and improve the cost auditing system and product quoting system. All cost reduction results should be reviewed and audited and the effectiveness of cost-reduction in each factory will be directly linked to the total wages.

✔ Nuclear Power Corporation Reducing Costs and Improving Efficiency Through Multi-channels

Shanghai Electric Nuclear Power Group has continued to explore and established several low-carbon and energy-saving, cost reducing and efficiency increasing systems. According to the requirements on the products, there are strict requirements on the cleanliness and temperature in the production sites of each enterprise of Nuclear Power Group. When making decisions for the investment, Shanghai Electric Nuclear Power Group also emphasized on social responsibilities and environmental protection strategies of the enterprises; adjusted plan for capacity expansion so as to reduce unnecessary investments but on the other hand to increase environmental protection investment, and to complete the tasks of reducing costs and increasing efficiency in the aspect of energy-saving and emission-reduction of the department. Ground source heat pump air conditioning system used in the energy-saving has ensured constant temperature in the workshops by digging several wells with the depth of 100 metres within the premises, leading to a 30% energy-saving as compared with the use of central air conditioning and gas fired boiler. Energy-saving transformers and electricity-saving lamps are used in power supply and lighting systems and we have made a considerable achievement in the energy-saving. In the aspect of energy-saving transformation of equipment and facilities, several vertical lathes and double housing planers have been overhauled and replaced with energy-saving motors.

✔ The effective water-saving work of Shanghai Turbine Works

During 2016, Shanghai Turbine Works applied its power managing system on the water supply system of the plant, managed to monitor the water consumption of the plant thoroughly, which made it easy to identify abnormal water consumption. Through inspection and timely measures, we substantially minimized the wastage and continuously increased the usage of water resource. During 2016, Shanghai Turbine Works optimized the water pipe and the leakage of the water pipe was further reduced. Shanghai Turbine Works checked on the leaking spot daily during the plant inspection and found two leaking spots. Meanwhile, it engaged professionals specializing in water leakage treatment to check the problem, which has greatly minimized the water leakage. Shanghai Turbine Works had paid attention to the corresponding water meter for two weeks subsequent to the water leakage treatment, making sure that there was no leaking spot undetected. The water consumption of the year reduced substantially as compared to last year. The water consumption of the plant reduced by 0.34 million ton as compared to 2015, representing a year-on-year decrease of 32.29%.

The packaging material consumption of Shanghai Electric for 2016

Packaging material	Consumption (tons)
Wood	25341
Coiling reel for cable	3423
Iron trestle	2750
Iron box	1100
Cardboard box	796
Plastics	107



✔ Shanghai Mitsubishi is honored with the titles of "Advanced Enterprise in Energy Saving and Consumption Reduction" (節能降耗先進企業) and "Environment Friendly Enterprise" (環境友好企業)

In the "2016 Environmental Construction and Energy-saving and Emission Reduction Conference" (2016年度環境共建及節能減排工作會議), Shanghai Mitsubishi Elevator was awarded the titles of "Advanced Enterprise in Energy Saving and Consumption Reduction" (節能降耗先進企業) and "Environment Friendly Enterprise" (環境友好企業) in 2015.







Green Office

We are committed to reducing energy consumption while providing clean energy for mankind. We believe that bringing green into the world energy will lead to an infinite future.

✔ Shanghai Turbine Works Co., Ltd. Implementing "Star Office"

After all the production workshops have successively won awards in the production site star rating nationwide or in Shanghai, Shanghai Turbine Works Union will extend the emphasis of establishing "star site" to the nearly 30 offices in the whole plant and star office panel has conducted on-site evaluation on certain offices. In addition to advocating low-carbon and environmental protection in the offices, star office panel has proposed rectification in respect of "excessive packaging" in some offices.

✔ Green Roof of Najie

As a kind of green energy, photovoltaic power generation directly converts the solar energy into electricity with the advantages of pollution-free, no-emission and noiselessness and becomes a renewable energy technology with the characteristics of being most sustainable. Every unit of clean electricity used can save standard coal consumption, reduce the emission of carbon dioxide and effectively promote the energy conservation and emission reduction. Compared with conventional power generation, grid-connected photovoltaic power generation system has the advantages of low operation and maintenance cost and operational cost savings. Shanghai Najie Electrical Complete Sets Co., Ltd. built up grid-connected photovoltaic power generation system with the use of roof space to self-generate power for the internal use within the company. Although the installed capacity is only 6.5kW, up until now the accumulated power generated amount to 19654kWh and achieve emission reduction of 11792kg carbon dioxide and save consumption of standard coal of 7665kg, which is one of the energy conservation and environmental protection demonstration project of Najie.

✔ Energy-saving Requirements Included in the Staff Handbook

Shanghai Power Station Auxiliary Equipment Works (上海電站輔機廠) has set up an energy consumption management system, involving management over gas, electricity, steam, water, power network, and air conditioning, and energy measurement management, energy statistics management, energy assessment and analysis. At the beginning of the year, energy management department has developed an annual energy consumption plan to reasonably allocate the energy resources among departments, workshops and offices on a monthly basis. Energy consumption of the previous month will be announced at the beginning of each month, and the planned energy consumption indicators will be compared with the actual consumption of energy. With the attention of the management and with the cooperation of every department, the content of the monthly report has served a role to help a better energy-saving result for each department. At the same time, combined with irregular energy inspection among departments, it is used as one of the basis of performance evaluation of the departments. Shanghai Power Station Auxiliary Equipment Works (上海電站輔機廠) has implemented the reward and punishment system in relation to energy-saving under the staff handbook.





# Green

## 4.2 Green Procurement

We pay attention to the enterprise's responsibility towards environmental protection, we promote green and environment-friendly procurement, and we take the initiative to reduce excessive packaging and disposables consumption to make due contributions to the green world.

### ✓ Close Monitoring over Procurement to Help Environment Protection

Shanghai Turbine Works (上海汽輪機廠) has gradually changed the paints for coating the surface of steam turbine from the original oily paints into water-based paints, and currently all such paints used are water-based paints. Through working with the suppliers for integrating the general industry adhesive materials and upgrading and replacing existing materials by environment-friendly materials, Shanghai Generator Works (上海發電機廠) is now using environment-friendly cleaner 6226 (high flash point, low VOC emissions, low odor) instead of flammable and explosive petrol and acetone. Stainless steel pipes purchased by Shanghai Power Station Auxiliary Equipment Works (上海電站輔機廠) are green, pollution-free and environment-friendly products, and through optimizing production technologies, such company replaced old production equipment and substituted solid-solution pickling with bright solid-solution.

### ✓ Optimization of Packaging to Promote Environmental Protection

Shanghai Turbine Works (上海汽輪機廠) required small and medium-sized items suppliers to recycle or re-use the wooden boxes used for their self-delivery, with the support and co-operation from planning and logistics department and the workshops in the factory through the co-ordination efforts of the company. Currently all small and medium-sized items suppliers are recycling and re-using their delivery boxes. Shanghai Generator Works (上海發電機廠) has explored co-operation with crating suppliers and carried out crating design optimization for rearranging the positions of the crating parts and the crating auxiliary materials to reduce excessive packaging and unreasonable crating design. Shanghai Power Station Auxiliary Equipment Works (上海輔機廠) mainly achieved the recycling of heat exchange tube packaging in the reduction of excessive packaging, which is economical and reduces the waste of primary resources, and also fulfills the social responsibility to protect the environment.

## 4.3 Ecological Harmony

We adhere to "focusing on national strategy, promoting high-tech industrialization vigorously developing low-carbon economy" with the goal to establish "resource conservation and environment-friendly" enterprise to provide China and the world with more efficient, greener and more economical energy and industrial equipment and complete solutions. We carry out environmental protection management, strengthen environmental governance, and promote the coordinated development between enterprise, economy and the environment to make our contribution to the creation of an ecologically harmonious and beautiful country.







### Committed to Resolving Coal-fired Pollution Problems

We have successfully developed second - reheat, 620°C technology independently and the products are entering into market in batches. Guodian Jiangsu Taizhou Power Plant Project (國電江蘇泰州電廠項目) is the first million-kilowatt class ultra-supercritical second - reheat generation unit with more than 47.8% power generation efficiency and coal consumption reduced by 5g/kWh. As "the Pearl on the Crown", gas combustion cycle thermal efficiency of a gas turbine is up to 40%, but the thermal efficiency of our gas-steam combined cycle power station is as high as 60%, which is a great news for treating haze. In recent years, we have 40% equity interest in Ansaldo Energia S.p.A through international cooperation. Since the cooperation, We have acquired orders for main equipment of gas turbines and long term service orders for gas turbines in China, as well as acquiring overseas orders in the Middle East market.

### IGCC "Green Power Station"

"Integrated Gasification Combined Cycle" (IGCC) is the accepted most promising clean coal power generation technology with the advantages of high efficiency, less pollution and water saving. The net power generation efficiency of IGCC can reach 43% to 45%, and its emission of pollutants is only 10% that of conventional coal-fired power station, while the desulfurization efficiency can reach 99%, sulfur dioxide emission is about 25mg/Nm<sup>3</sup>, nitrogen oxide emission is only 15% to 20% of that of conventional power station, and water consumption is only 1/2 to 1/3 of that of conventional power station. As the main equipment supplier of the first IGCC project in China - Huaneng Tianjin Harbor IGCC power station, we provide products such as supporting gasifier, E grade gas turbine, steam turbine as well as generator for the project.



Gasifier, Fixture of Tianjin IGCC Power Station



### Strong Assurance for Wind Power, Photovoltaic Power Generation Development

Through the technology acquisition and independent innovation, we have established a design and development platform for wind power units of domestically first-class, internationally advanced standard, and have formed a strong core technology system, and successfully developed 2MW series wind turbines and 3.6MW series offshore wind turbines with independent intellectual property rights. We have the leading domestically self-design capability for complete machines, blades, intelligent control and towers. Through the strategic cooperation with Siemens, we have mastered the product technology of 4MW and 6MW large offshore wind turbines, and achieved a leap-forward development in the field of offshore wind power. In 2016, on the basis of 489MW additional installed capacities in the offshore wind power market, Shanghai Electric has become the largest offshore wind turbine complete machines manufacturer in the world.



# 088

Chapter Four Achieving Sustainable Development Together with Vision



In 2014, we undertook the electricity supply system demonstration projects for nomads in Inner Mongolia area. As of the end of 2016, wind and solar complementary power supply system had been developed into three models and promoted over Inner Mongolia area, which has effectively addressed the Inner Mongolia nomads' problem with electricity consumption difficulty and improve the life quality of the local residents. Besides the areas that are beyond the coverage of the grid, the off-grid product is also suitable for power supply for unattended equipment and equipment with unstable power supply. Combined with distributed energy technology consulting services and system integration designing capabilities, we can provide general solutions for distributed energy fields for the market.



# 089

Chapter Four Achieving Sustainable Development Together with Vision

## Accelerate the Exploration of Biomass Renewable Energy

We have a number of established technologies in biomass renewable energy, thus can provide users with the most suitable technological solutions. We owned biomass incineration treatment (grate furnace and fluidized bed) and digestion technology, and meanwhile we introduced and owned the technology of natural gas synthesized by wood (or other dry biomass). With the Yangtze River Delta Air Pollution Joint Prevention and Cure and Regional Energy Cooperation Projects (长三角大气污染联防联控及区域能源合作项目), we made investment in and carried out a package projects of straw incineration power generation in a number of counties and municipal level areas in Anhui, which greatly reduced the adverse impact over the environment resulting from uncontrolled burning and stacking of straws, reduced the emission of carbon dioxide and sulfur dioxide and helped satisfy the increasing local demand for electricity, and achieved the agricultural recycling economy model of "resources – products - wastes - renewable resources". Construction for biomass power generation plants in areas including Huaibei, Mengcheng, Tianchang and Wuhu has commenced and each power generation plant can reduce emission of 350 tons of smoke and dust annually.

At the same time, we also actively expand our footprint in overseas markets and launch pilot projects in the aspect of renewable energies such as biomass, wind and solar energy. In North America, our first renewable energy pilot project can save 84,000 tons of fuel oil annually and reduce 295,000 tons of CO2 emission, which successfully alleviated the problem with increasingly exhausted local fossil fuels, setting a standard for the subsequent development of renewable energy projects in the region.



## Environmental Protection Switchgear Equipment Helping Greenhouse Gas Emission Reduction

Shanghai Electric Power T&D Group has developed environmentfriendly gas-insulated metal confined switch cabinet of type SEG1- 12 (Z) /T1250-31.5 using N2 gas insulation technology that is in line with the international concept of environmental protection. Furthermore, for some insulation parts of such cabinet, environment-friendly engineering plastics have been used, integrating also the advantages of vacuum breaking technology in the production of such cabinet. This switchgear complies with internationally leading technological performance indicators and adapts to development needs of the electricity market. When being launched, the product will replace the existing similar products which used SF6 gas insulation technology and will effectively reduce the emission of SF6 of electric switchgear equipment.



# Notes for Readers` Attention

## Brief Introduction

Shanghai Electric Group Company Limited began to prepare and disclose the annual social responsibility report in 2009 and issued the report on a regular and annual basis. It is the eighth corporate social responsibility report, aiming to truthfully reflect the development and implementation of corporate social responsibility of the Company for the year 2016, to publicly report the operation of the Company to stakeholders including shareholders, employees, government, customers, partners and community public, to help stakeholders to have an in–depth understanding of corporate social responsibility activities conducted by the Company.

## Basis of Preparation

In preparing this report, we have followed and made reference to the following standards, proposals and guidelines:

1   Guidelines for Preparing and Reviewing the Internal Control Report and Social Responsibility Report of Listed Companies of Shanghai Stock Exchange	3   Guidelines for Preparing PRC enterprises' social responsibility report of Chinese Academy of Social Sciences
2   Core proposals in Sustainability Reporting Guidelines (G4 Version) of Global Reporting Initiative ( "GRI" )	4   ISO 26000: Guidelines for Social Responsibility (2010)
	5   Environmental, Social and Governance Reporting Guide of Listing Rules of The Stock Exchange of Hong Kong Limited

## Period Coverage

This report covers the period from 1 January 2016 to 31 December 2016, but reporting period has been extended for some of the information.

## Scope of Report

Contents cover headquarter, internal institutions, branches, wholly–owned subsidiaries, holding company and some investee companies of Shanghai Electric Group Company Limited.

## Source of Data

Certain financial figures quoted in this report were derived from the financial report for the year 2016 of Shanghai Electric Group Company Limited which has been audited independently by PricewaterhouseCoopers. Futher details about our financial results are available in 2016 annual report of Shanghai Electric Group Company Limited. Other figures and data have been prepared based on relevant rules and regulations or statistics of the Company which have not been verified by independent third party.

## Description of Reference

For convenience, “we” , “Shanghai Electric” , “the Company” and “the Group” refers to “Shanghai Electric Group Company Limited” . To reduce environmental pollution and paper use, this report is mainly published in PDF electronic form. Readers can download the report from the website of Shanghai Stock Exchange (www.sse.com.cn), the website of The Stock Exchange of Hong Kong Limited (www.hkexnews.hk) or the website of Shanghai Electric Group Company Limited (www.shanghai–electric.com).

### Feedback is welcome!

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