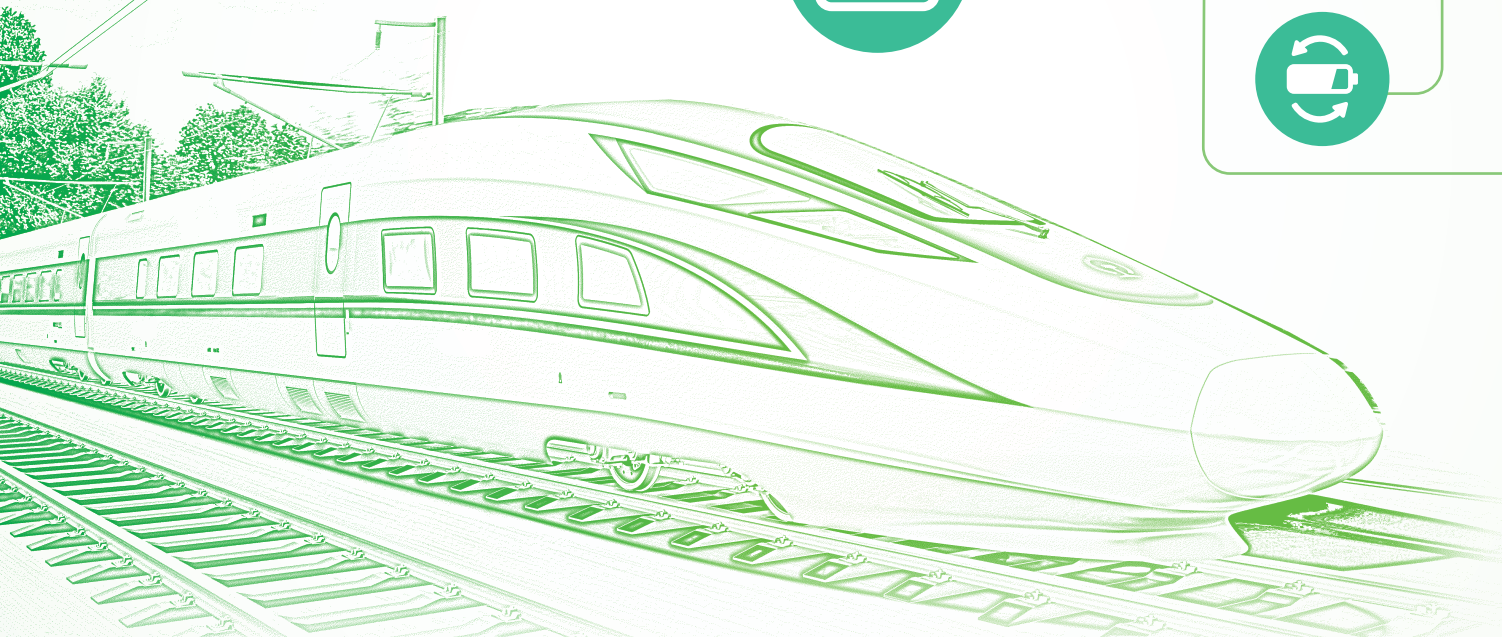




2017

Corporate Social Responsibility Report



株洲中车时代电气股份有限公司

ZHUZHOU CRRC TIMES ELECTRIC CO., LTD.

(A joint stock company incorporated in the People's Republic of China with limited liability)

Stock Code: 3898

Notes

For better expression and reading, Zhuzhou CRRC Times Electric Co., Ltd. is represented as “CRRC Times Electric”, “the Company” or “we” in this report.

The report is prepared with references to the Environmental, Social and Governance Reporting Guide set out in Appendix 27 to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited, Guideline on Sustainable Development Report of the Global Reporting Initiative (GRI), Guideline on Social Responsibilities of Industries (GSRI-China) and “the Ten Principles” of the UN Global Compact, and based on the actual situation of CRRC Times Electric.

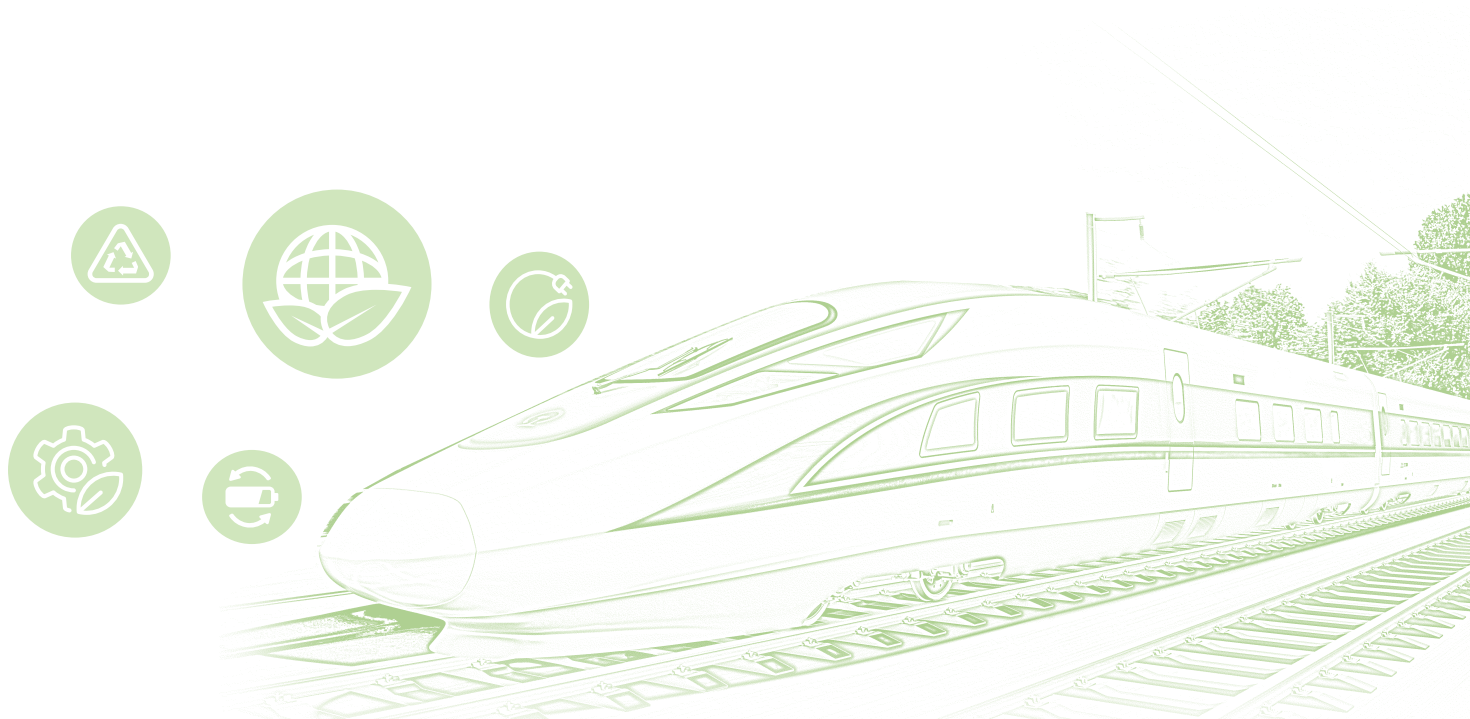
Unless otherwise specified, the report covers the period from 1 January 2017 to 31 December 2017. The currency used herein is RMB. This report covers the Company’s headquarters and share-holding subsidiaries but not including joint stock companies, and uses the same scope, boundary and calculation methods as the previous reports.

This report is a faithful reflection of the Company’s active fulfillment of its economic, environmental and social responsibilities and its full implementation of the sustainable development strategy. It is a report of full disclosure of the Company’s management performance related to stakeholders’ concerns and expectations. All the information and data herein are collected from the Company’s official documents, statistical reports and sustainable development practices of functional departments and subordinate units.

This report is published in both Chinese and English versions. If there are discrepancies between the two versions, the Chinese version shall prevail.

Address of the Headquarters: Shidai Road, Zhuzhou City, Hunan Province, China.

Electronic Version Available at: www.tec.crrczic.cc



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SPEECH BY THE GENERAL MANAGER

UPHOLD HONESTY AND DILIGENCE, PURSUE BETTER QUALITY AND INNOVATION, AND WORK TOWARDS HEALTHY DEVELOPMENT

The 19th National Congress convened successfully in 2017. The main tune of development in the new era inspired progress and the national economy achieved high-quality growth. The Belt and Road Initiative brought new momentum and the High-Speed Rail became a “gold business card” for China. Internationalization accelerated notably in the global arena, with the exchange and integration between most regions becoming more efficient and the world economy kept on growing. CRRC Times Electric upholds the fine culture of CRRC. Adhering to the mission of “driving the sustainable development of green transport and energy sectors to provide safe and convenient core momentum to society”, we strive to become the “preferred supplier of complete solution for transport and energy electrical system in the world” and bring greater good to mankind and society.



In recent years, the new norm of economy has emerged in China, which gradually stabilized and slowed down economic development as a whole. In view of such, the Company has emphasized on the “responsibility-based and success-driven” approach. Centering on the core principles of “stabilizing inventory, increasing growth momentum, seeking differentiation and focusing on synergy”, it has formulated detailed plans and explored different measures. It has also adopted an open mind, set up focused strategic goals and leveraged the innovative platform to enhance refined management and achieve major breakthroughs in terms of “system, industry, technology and efficiency”. As a result, we made overall progress amid stability.

With a heart of gratitude, the Company is always on the mission to create and share value. The Company will stay committed to sustainable development and actively fulfil its role as a responsible corporate citizen. It will strive to maintain the balance among industrial development, environmental protection as well as social and business progress, thereby benefiting all stakeholders by sharing the fruits of corporate growth with the country, society, shareholders, customers and employees.

In light of the PRC’s macro political and economic backdrop, the Company will hold on to its mission and responsibilities on development, while focusing on four major core concepts, namely “integrity and diligence, quality-driven, value creation and business achievement”. At the same time, it will pass on and promote its traditions and legacy to shape shared values. It will also standardize the governance structure for legal persons and maintain harmonious investor relationship. With focused efforts in business development as well as system standardization, the Company ensures honest, prudent and trustworthy operations.

SPEECH BY THE GENERAL MANAGER

The Company's commitment to and engagement in social responsibilities are demonstrated in all aspects, including standardized enterprise governance, cooperation with customers and suppliers, and prevention of operational risks. By setting up a complete energy management system, the Company has endeavored to cut energy consumption and emission, with the aims of improving the environment and combating climate change. Through design and manufacture of energy-saving products, the Company boosts energy efficiency and mitigates the adverse impact on the climate and environment. Moreover, the Company promotes the upgrade of industry technology and know-how, and supports local economic development with technological innovation, so as to provide the safest, most comfortable and convenient green transport modes for society and people.

The Company fulfils its social responsibilities and regularly organizes community activities to interact with stakeholders. Besides, it actively participates in social and public welfare events. The Company enhances the research and development of semiconductor and conversion technology through collaboration with local and overseas renowned universities. In addition, it pays attention to the occupational health and safety of staff and arranges regular physical check-ups for them. All these initiatives showcase the values of CRRC Times Electric in its pursuit of honest operation and highly efficient development.

Honest operations are crucial to corporate development. CRRC Times Electric always upholds the operating philosophy of integrity and diligence, while enhancing corporate brand and market position with high quality products. Aiming at mutual benefits and sharing, the Company strives to explore new growth momentum in various areas along the industrial chain, and works towards value creation and enhancement by capitalizing on all types of resources. I believe that with our relentless efforts, we will be able to deliver reasonable returns to our shareholders, provide quality products and services to customers, seek more benefits and happiness for our staff and create greater value that brings industrial progress and social development.

Executive Director and General Manager of Zhuzhou CRRC Times Electric Co., Ltd.
Liu Ke'an

PART I COMPANY PROFILE AND GOVERNANCE

I. COMPANY PROFILE

1. Introduction

Zhuzhou CRRC Times Electric Co., Ltd. (formerly known as Zhuzhou CSR Times Electric Co., Ltd.) was established jointly by five units on 26 September 2005, including CRRC Zhuzhou Institute Co., Ltd. (formerly known as CSR Zhuzhou Electric Locomotive Research Institute Co., Ltd.). On 20 December 2006, it was successfully listed on the Hong Kong Stock Exchange (stock code: 03898 HK).

In order to achieve “higher reliability and safety, as well as higher efficiency and effectiveness”, CRRC Times Electric adopts the rapid traction management model and adheres to the “concentric diversification” development strategy. Focusing on technology and market, it has established a complete industrial chain comprising “basic parts + devices and systems + overall units and engineering” for various sectors, including high-speed rail, locomotives, urban rail transit, railway engineering machinery, signal and communication, high power semiconductor, sensor, marine engineering equipment, new energy vehicle, environmental protection and general inverter, with the global presence in various countries and regions.

With the core purpose of “promoting the sustainable development of green traffic and energy to provide safe and convenient core power to society”, CRRC Times Electric undertakes the mission of the industry and fulfils social responsibility. Joining hands with the community, it strives to make outstanding contributions to the growth of China’s high-end equipment industry.

PART I COMPANY PROFILE AND GOVERNANCE

2. The Main Economic Performance of the Company in 2017

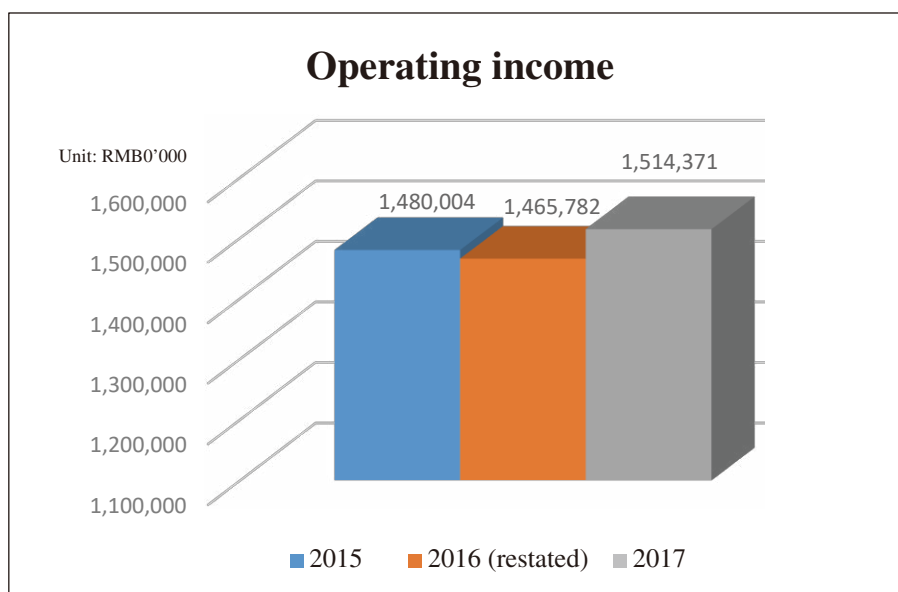
Save for total profit, the Company's main business performance indicators saw improvement in 2017. Set out below are the business performance indicators:

Table of major business performance indicators

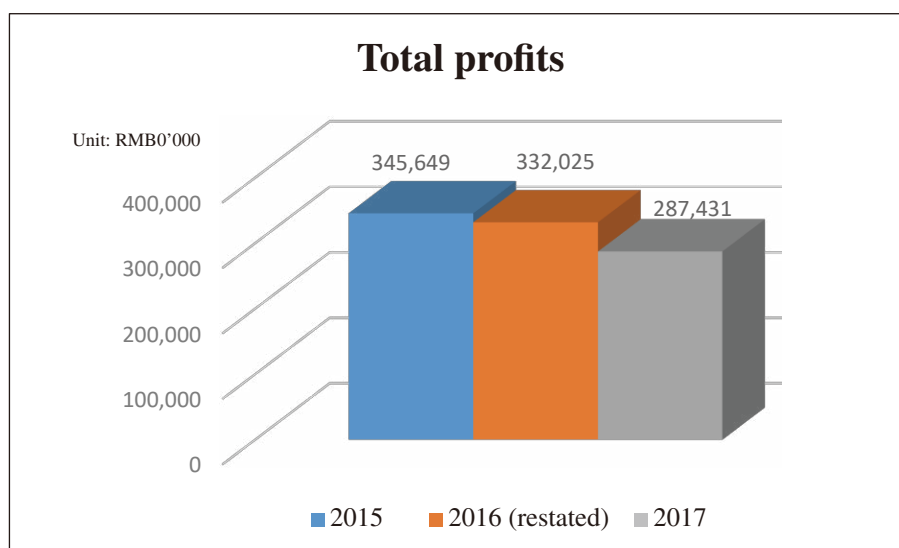
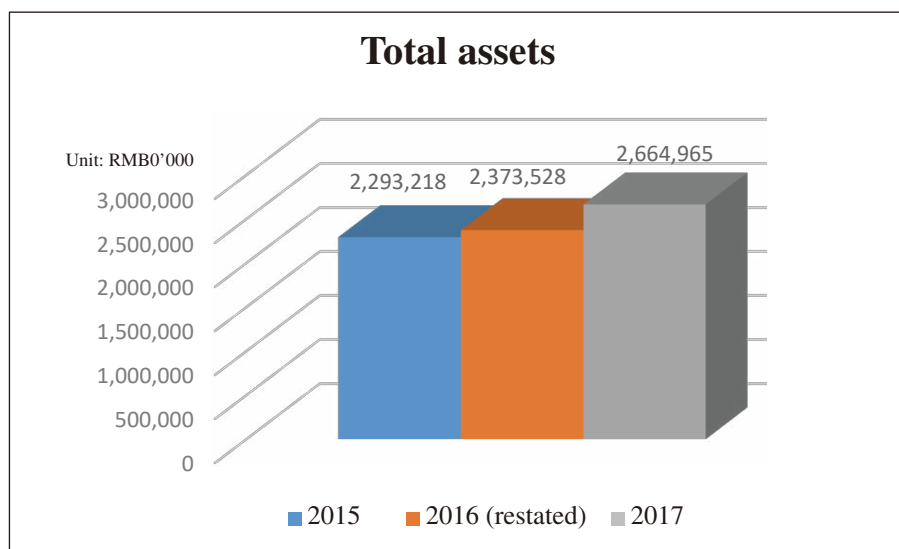
Unit: RMB ten thousand

Year Indicator	2015	2016 (restated)	2017
Operating income	1,480,004	1,465,782	1,514,371
Total assets	2,293,218	2,373,528	2,664,965
Total profits	345,649	332,025	287,431
Total tax payment	166,445	150,921	153,365
Operating costs	913,841	906,228	952,904
Market value of the Company's share capital	4,436,589	4,137,510	4,996,424
Revenue distribution	52,896	52,896	52,896

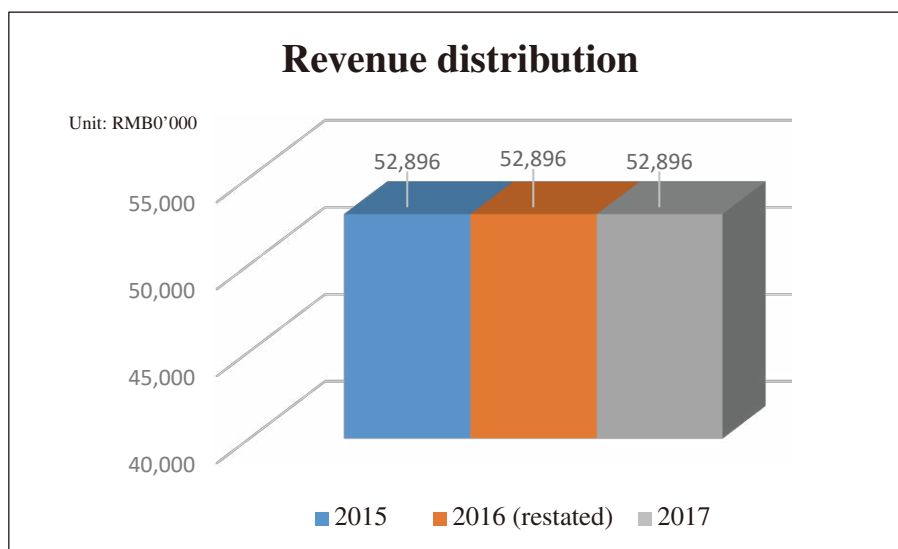
*Note: The revenue distribution in 2017 shall be subject to the approval of the general meeting of shareholders.



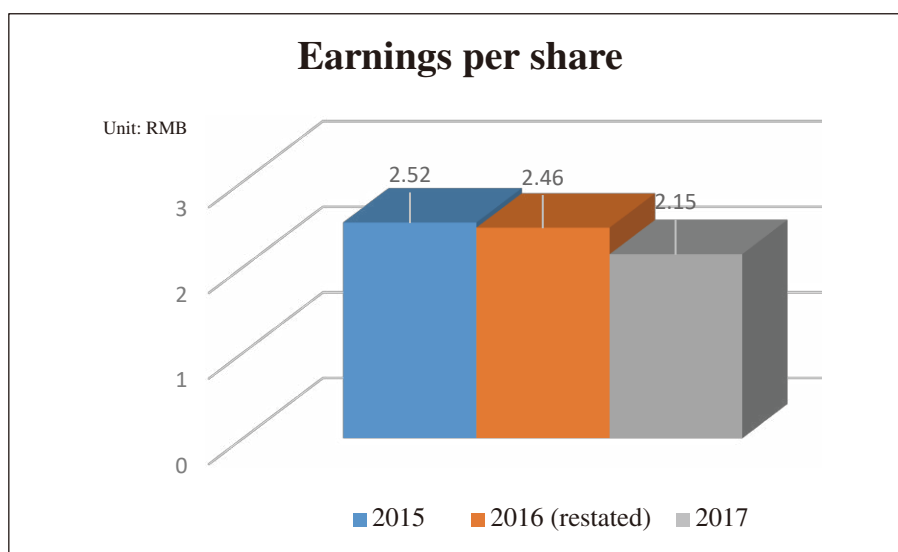
PART I COMPANY PROFILE AND GOVERNANCE



PART I COMPANY PROFILE AND GOVERNANCE



The earnings per share of the Company declined slightly in the past three years. From 2015 to 2017, it recorded earnings per share of RMB2.52, RMB2.46 and RMB2.15, respectively.



– Business performance of sub-product

In 2017, the Company achieved an operating income of RMB15.144 billion, including RMB2.692 billion from traction converters, auxiliary power supply equipment and control systems for locomotives, RMB3.438 billion from traction converters, auxiliary power supply equipment and control systems for EMUs, and RMB2.579 billion from traction converters, auxiliary power supply equipment and control systems for urban transit trains. Operating income from other products amounted to RMB6.435 billion.

PART I COMPANY PROFILE AND GOVERNANCE

Operating Income from Major Products in the Past Three Years is as follows:

(Unit: RMB million)

Indicators	2015	2016 (restated)	2017
Traction Converters, Auxiliary Power Supply Equipment and Control Systems for Locomotives	3,458	1,925	2,692
Traction Converters, Auxiliary Power Supply Equipment and Control Systems for EMUs	4,951	5,446	3,438
Traction Converters, Auxiliary Power Supply Equipment and Control Systems for Urban Transit Vehicles	1,873	2,584	2,579
Railway Maintenance Machineries Related Products	1,495	1,782	3,041
Signal & Communication Products	561	536	653
Key Electric Part and Component Products	645	1,562	1,764
Marine Engineering Products and Other Products	1,816	823	977
Total Operating Income	14,800	14,658	15,144

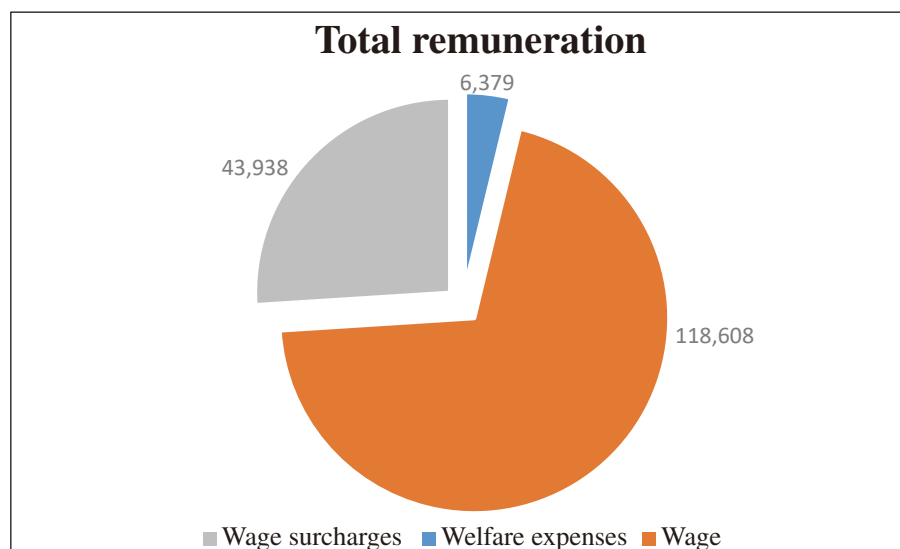
- Significant financial support from the government

From 2015 to 2017, the Company has undertaken various major scientific and technological projects of the state, the ministries and commissions and Hunan Province. Total allocation from the government for scientific and technological projects amounted to RMB67.59 million, RMB54.67 million (restated) and RMB58.07 million in 2015, 2016 and 2017 respectively.

- Employees' total remuneration and classification

In 2017, the total remuneration of our employees was RMB1,689.25 million, including wages of RMB1,186.08 million, wage surcharges of RMB439.38 million and welfare expenses of RMB63.79 million.

PART I COMPANY PROFILE AND GOVERNANCE

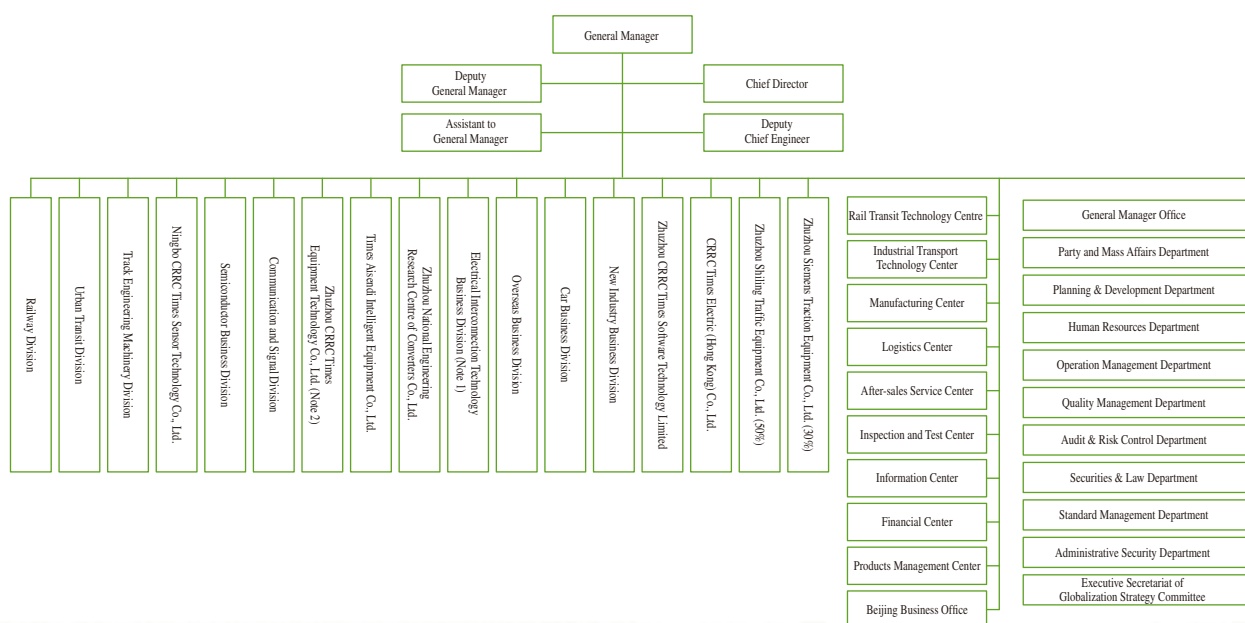


II. CORPORATE GOVERNANCE

1. Corporate Governance Mechanism

1.1 Corporate Organizational Structure

Organizational chart of Zhuzhou CRRC Times Electric Co., Ltd.



Note: (1) Electrical Interconnection Technology Business Division was closed on 20 March 2018.

(2) Zhuzhou CRRC Times Equipment Technology Co., Ltd. was deregistered on 15 May 2018.

PART I COMPANY PROFILE AND GOVERNANCE

1.2 Corporate Governance System

- *Board of Directors*

As at the date of this report, the board of directors (the “Board”) of the Company is comprised of 9 directors, each with different industry backgrounds and expertise. The Board fully represents the interests of shareholders and is accountable to the general meeting. It formulates the Company’s development strategy and monitors the implementation of management and finance within the terms of reference as required in the Articles of Association and in accordance with the procedures set out in the Rules of Procedures of the Board, and takes long-term performance and returns as its priority. Five specific committees, namely strategy committee, audit committee, risk management committee, nomination committee and remuneration committee are established under the Board.

The Company has 4 independent non-executive directors, representing more than one-third of the total number of directors. Independent directors focus on the improvement of corporate governance and major decisions of the Company, express fair and objective advice on major matters and related transactions of the Company, and employ scientific approaches in decision-making of the Board so as to safeguard the interests of the Company and minority shareholders.

The Company held 6 meetings of the Board in 2017.

- *Board of Supervisors*

As at the date of this report, the board of supervisors is comprised of 4 supervisors, including 1 independent supervisor, 1 shareholder representative supervisor and 2 staff representative supervisors. In particular, staff representative supervisors were nominated by the Workers’ Congress of the Company and elected at the general meeting. The board of supervisors exercises supervision rights independently according to the law to safeguard the legal rights and interests of shareholders, the Company and its employees.

The Company held 3 meetings of the board of supervisors in 2017.

- *The Management*

The senior management of the Company is responsible for executing strategic decisions of the Board and management of daily operations of the Company. Daily supervision and annual assessment of the management are performed by the Board. The positions of Chairman of the Board and General Manager of the Company are held by different individuals, for which the duties are clearly defined to ensure the independence of the Board’s decision and daily management and operation. The Company sets up annual goals for the respective subordinate units by dividing its strategic objectives for different years and layers and establishes an objective-based evaluation system for senior management and managers of subsidiaries, business units, the centers and functional units to form a performance-linked incentive and disciplinary mechanism. Assessment criteria and methodology are determined in the form of annual undertaking of target management responsibility and performance remuneration of the management is directly linked with results of appraisal.

PART I COMPANY PROFILE AND GOVERNANCE

- *Information Disclosure Policy*

In strict compliance with the relevant national laws and regulations as well as the requirements of the Securities and Futures Commission and The Stock Exchange of Hong Kong Limited (the “Hong Kong Stock Exchange”), the Company issues reports and discloses relevant information in a timely, accurate and complete manner to ensure that investors and stakeholders can keep abreast of the Company's operation and management. Besides, the Company has also established dedicated departments, positions and specific mailbox to enhance communication with its investors. The Company strictly fulfils the confidentiality obligations in information disclosure and there was no significant premature disclosure or misstatement of information in 2017.

2. Risk Management and Internal Control

To ensure the smooth process of the Company's production, operation, and business activities and keep them in line with the Company's strategic objectives, operational objectives and shareholders' vision and in compliance with regulators' requirements, the Company has established a sound risk and internal control system. According to the requirements of relevant laws and regulations, such as the Company Law, Securities Law, Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited, etc., the Company has established a risk and internal control system with the Articles of Association as the general rules, and the Rules of Procedures for the General Meetings, Board of Directors and Board of Supervisors and working rules of professional committees as the main framework; established an internal control system consisting of three levels, i.e. the corporate system, fundamental management system and business management system; adhered to the development strategies of the Company; and formed an all-around risk management system through the effective implementation of all sections of comprehensive risk management.

2.1 Risk Management and Internal Control Organizational System

The Company is dedicated to building a sound and stable risk management and internal control system. The Board is responsible for the establishment, improvement and effective implementation of risk management and internal control system of the Company. The risk management committee under the Board is responsible for reviewing the Company's risk strategy, risk management and internal control, work report on risk control, internal control procedure, regular assessment of risk management policy, supervision of the implementation of the risk management and internal control system, supervision of the implementation of various rules and regulations and material operational decisions as well as assessment of significant matters. The board of supervisors is responsible for supervising the operation of the Company's risk management and internal control system. The General Manager is responsible for organizing and leading the design, operation and assessment and evaluation of the Company's risk management and internal control system.

The Company has established a comprehensive risk management system based on risk hierarchy, classifications and centralized management. Five professional risk management groups are established under the risk management committee, namely the strategic risk, market and operational risk, financial risk, legal risk and technical risk groups, and the risk business working group is also established. By defining the terms of reference and duties for risk management committee, professional risk management groups and risk business working group, risk management duties are assigned to facilitate the Company's ongoing comprehensive risk management.

PART I COMPANY PROFILE AND GOVERNANCE

2.2 Risk Management System

The Company has prepared the Internal Control System Compilation covering operation and management of various business activities, formulated the Internal Control Manual, Internal Control Evaluation Manual, revised the Comprehensive Risk Management Measures, Risk Assessment Procedure, Risk Alert Procedure, Assessment Rules for Comprehensive Risk Management and Internal Control Assessment Procedure, thereby improving the risk management and internal control system.

The Company always regards risk prevention and control as a primary task and aims to refine the corporate governance structure. Under the guidance of the Board and senior management, the Company puts emphasis on the development of risk management culture, pays attention to the control of high-risk projects, further develops the new risk management model and persists in adding value to risk management. Emerging as a corporate with a value of over RMB10 billion, comprehensive risk management will gradually become an internal growth driver for its sustainable development and stronger international competitiveness. Since its inception, the Company has not caused adverse effects on the nation and society, nor suffered from any loss due to risks.

2.3 Supervision and Improvement

The Company carries out daily specific and regular supervision of the risk management plan, risk evaluation, risk alert, implementation of risk response plan, risk database management, risk management report and material risk report. In addition, the Company also instructs timely rectification of risk incidents and defects identified to form a subsisting supervision mechanism. The Company adopts closed-loop management of risk incidents through follow-up and examination on risk rectification on a regular basis each year and supervision and evaluation of the implementation of measures against risk incidents for the prior year recorded in the risk database and the current status of the incidents.

Centering on operation compliance and prevention of material risks, the Company commenced risk management and internal control initiatives in 2017. Firstly, the Company conducted annual risk identification and assessment. It established five professional risk management groups for identification and dynamic assessment of a variety of business risks, which formed the database of risk incidents for 2018. It also responded to high-risk incidents through regular follow-up to ensure risks were under control. Secondly, the Company performed an annual internal control assessment. It formulated the self-assessment proposal for internal control of the entire organization, which assessed the effectiveness of the design and implementation of internal control in phases and identified that the Company had no material deficiencies. Thirdly, Ernst & Young was engaged for internal control audit and the result of which indicated that there were no material deficiencies in terms of the design or implementation of the internal control of the Company. As for the general management issues proposed by Ernst & Young, the Company proactively organized rectifications and achieved closed-loop management for the effective prevention of operational risks through the above measures.

PART I COMPANY PROFILE AND GOVERNANCE

3. Corruption Combat and Advocacy of Integrity

In 2017, the Company focused on the in-depth performance of the “Two Responsibilities”, inspection and rectification, ongoing strengthening of prevention and control of integrity risk, nurturing of an anti-corruption culture, and standardizing procedure for petitions, reporting and investigation with the aim of promoting the CPC work style and anti-corruption culture. The Company highlighted the party discipline and the senior members took lead in adopting a practical approach. The Company also strived to strengthen supervision, follow-up and reporting procedure. In pursuit of real results, it performed stringent evaluation which provided solid support to corporate development.

In 2017, there was no case of corruption in respect of the Company or its employees.

III. IMPORTANT HONORS OF THE COMPANY

No.	Honors
1	“Study and Application of the New Generation of A/C High-speed Electric Passenger Locomotives” Project: National Science Progress Award (2nd Class)
2	Patent technology of “Method of Three-Phase Dual-Mode Space Vector Overmodulation and Relevant System”: WIPO-SIPO Award for Chinese Outstanding Patented Invention
3	“Study of Regenerative Energy Feedback Device in Power Supply System for Urban Rail Transit”: Science and Technology Award (2nd Class) of China Power Supply Society
4	Photovoltaic Direct-drive Centrifuge System with Variable Frequency: Second Prize for Science and Technology Award of Machine Industry Association
5	3300V/1500A High Power Density IGBT: Innovation Award in Hunan Province
6	“Key Technology and Engineering Application of Grid Connection Control for Photovoltaic and Doubly-fed Wind Power” project: Second Prize for Scientific and Technological Progress in Hunan Province
7	“Study and Engineering Application of Technology Set for Changsha Maglev Express Technical Engineering” project participated by the Company: Second Prize in Innovation Achievements in Hunan Province
8	“Key Technology and Application of Traction Control for High-speed and Heavy-haul Trains” project: First Zhuzhou Technology Innovation Award
9	“Study and Application of Key Technology Platform for High-quality Drive Control” and “Study and Application of Key Technology in Traffic Monitoring System”: First Prize for Technological Advancement in Zhuzhou
10	“Method of Three-Phase Dual-Mode Space Vector Overmodulation and Relevant System (Patent)” project: CRRC Technology Special Prize
11	“Research and Development of Traction Network System for China’s Standard Electric Multiple Units”: CRRC Technology First Prize
12	“JJC Catenary Maintenance Railcars”: CRRC Technology First Prize
13	“Autonomous Network Control System for Rail Grinding Vehicles”: CRRC Technology Second Prize
14	“JX300 Catenary Inspection Railcars”: CRRC Technology Third Prize
15	“Mi Gui” Photovoltaic Inverter: “Most Ingenious Photovoltaic Product Award”
16	2017 Outstanding Contribution in Integration of Informatization and Industrialization-Innovative Enterprise in Integration of Informatization and Industrialization
17	2017 Demonstration Enterprise of Management Standard for Integrating Informatization and Industrialization
18	2017 Advanced Unit in Poverty Alleviation through Photovoltaic Development in Hunan Province

PART I COMPANY PROFILE AND GOVERNANCE

No. Honors

- 19 Recommended Enterprise for PV Inverter and EPC in Hunan Province
- 20 Baoji Times of CRRC Times Electric: Innovation Award of the China Railway Electrification Technology and Equipment Exchange Seminar
- 21 Committee branch of CRRC Times Electric: May 4th Red Flag Youth League Committee of Zhuzhou Municipal Committee
- 22 CRRC Times Electric Xuexing Volunteer Association: Outstanding Volunteer Service Group of Zhuzhou Municipal Committee
- 23 Shang Jing: Outstanding Youth in Achievement Transfer Award of the 20th Annual Meeting of the China Association for Science and Technology
- 24 Liu Shaojie: CRRC's "Craftmaster of the Express Rail Link"

IV. CORPORATE VALUE AND STAKEHOLDERS

1. Corporate Values

Core value: Walk the righteous path with the righteous mind and do good deeds with good intention

Organizational climate: Positive and harmonious, candid and honest, open and inclusive

Work style: Strong commitment, sense of timeliness and pursuit of excellence

Spirit of enterprise: Integrity, Dedication, Innovation and Excellence

Missions: To propel the sustainable development for green transport and energy so as to provide safe and convenient core momentum for the society

Vision: To become a most-preferred supplier of comprehensive solution for the electrical systems in areas of global transport and energy

Strategic Guiding Ideology in 2017:

In adherence to the development strategy of "concentric diversification", the Company enhances the awareness of "customers, costs, innovation, responsibilities" and centers on the industry structure of "basic parts, devices and systems, overall units and engineering", to maintain the inventory, increase exploration, seek for differentiation and focus on synergy effects, entering a new chapter along with the "13th Five-Year Plan" with its success spirit and outstanding brands.

PART I COMPANY PROFILE AND GOVERNANCE

2. Concerns of Stakeholders

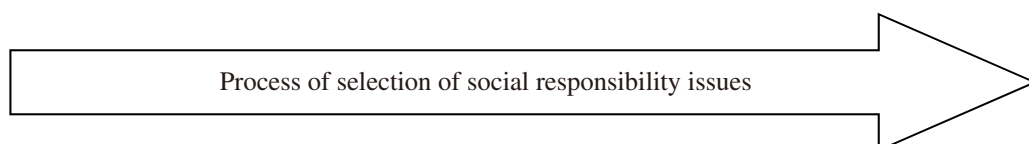
With the core goal of sustainable development, the Company pays close attention to various stakeholders, continuously strengthens exchanges and communication with them, fully understands and collects their requests and makes responses positively in view of the actual situation of the Company. The Company has always strived to cooperate with stakeholders to create and share value and promote sound and rapid development of the Company.

Stakeholders	Ways of Communication	Requirements & Expectations	Main Indicators
Government	Laws and regulations, release of policies, meetings, theme reports, report forms and visits	Complying with laws and regulations, ensuring tax revenue, providing job opportunities, and developing rail transit equipment industry	Total tax income and new job opportunities created
Customer	Collecting comments, daily liaison and visits by sales representatives	Providing products and services with good quality and competitiveness, and improving them continuously	Customer satisfaction rate and products qualification rate
Investors	Regular report, unscheduled announcement, general meetings and circulars	Continuously enhancing company value, preventing corporate risks and ensuring sustainable development	Profits, return on equity, gearing ratio, owner's equity
Employees	Proposal of Workers' Congress, employee mark-based reward system, executives reception day, consultation, democratic assessment, employee exchange forum, etc.	Providing employees with safe, fair and comfortable working environment, more benefits and growth opportunities	Employee satisfaction and loyalty, turnover rate and investment in employee training
Suppliers	Suppliers meeting, negotiations on contracts and agreements, regular visits, tendering meetings and collecting comments	Long-term cooperation for reasonable profits	Project bidding, claim on quality defect from suppliers, etc.
Community	Communications by means of suggestion box and questionnaire surveys, festival parties, active participation in and support for community activities	Well-organized manufacturing to promote a prosperous and harmonious community with safe and healthy living environment	Investment in community constructions, times of participation in community activities and amount of donations

PART I COMPANY PROFILE AND GOVERNANCE

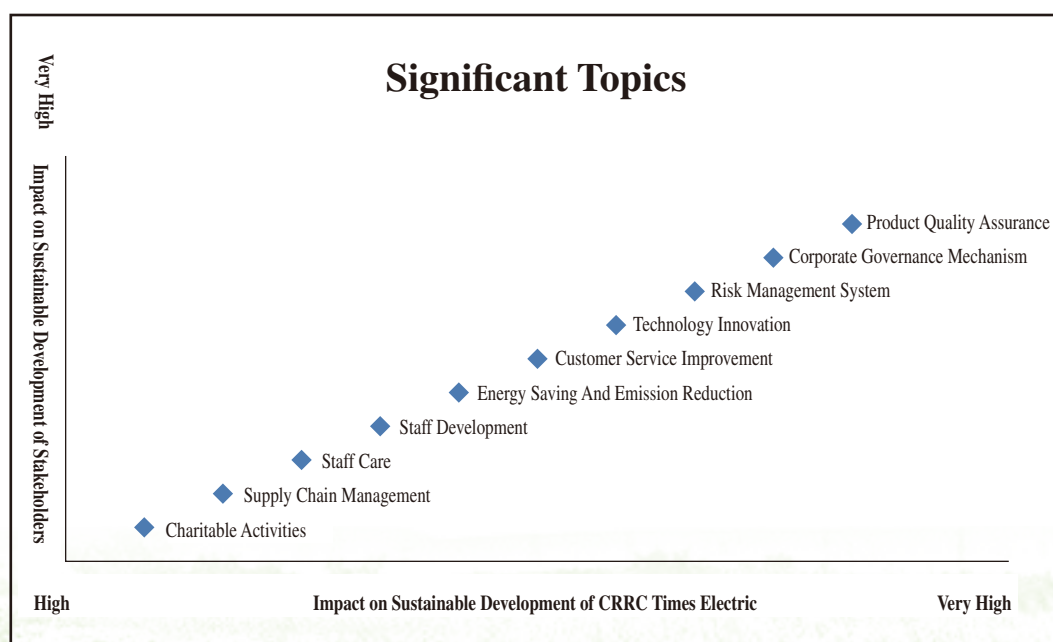
3. Determination of Significant Topics

The Company continued to improve the process for the determination of content for reporting with reference to the requirements of the ESG Reporting Guide of the Hong Kong Stock Exchange. The Group enhances the interaction with stakeholders through various means, identifies and determines material issues that concern stakeholders, and eventually determines the extent and scope of disclosure, so as to ensure a more accurate and comprehensive disclosure of information.



Source of issues	Standards of selection
Guidance on Standards of Social Responsibility	Contribution to sustainable development
Company management and staff	General concern of stakeholders
Government and investors	Emphasis on the Guidance on Standards of Social Responsibility
Suppliers and customers	Compliance with the Company's needs of strategic development
Community	
Analysis of information from various channels	

Results of determination of significant topics



PART I COMPANY PROFILE AND GOVERNANCE

V. OPPORTUNITIES AND CHALLENGES

Currently, the PRC economy is under pressure and the growth rate continues to slow down due to the combined effect of shifting into new gears in economy, teething problems in restructuring and digestion of previous stimulation policy. While the overall economy achieves steady development, emerging economies gain momentum rapidly and remains strong. In particular, the high-technology sector and equipment manufacture sector see accelerating growth. With the implementation of the “Go global” strategy for China’s railways and the changes in external environment such as further opening up of domestic rail transit market, the Company will face new challenges amidst opportunities.

- *Opportunities*

After the rapid development in the recent years, China’s rail transit industry has laid a sound foundation for the establishment of a comprehensive railway transportation network across the country with the development goal of achieving “tri-networks integration” of trunk railway, intercity rail and urban transit in the future, bringing new opportunities for the growth of rail transit equipment market. In addition, leveraging on the urbanization development, the investment demand for domestic rail transit market has continued to rise. According to the National New-Type Urbanization Plan, China’s urbanization will develop rapidly during the “13th Five-Year” period, the urbanization rate will be around 60% in 2020 with an increase in urban population of 100 million. With a view to resolving the issue of city-to-city transportation of large volume of passengers in urban clusters, and in comprehensive consideration of the resource and environmental constraints of urban development in China, a rapid transportation network based on rail transit was formed between the cities of highly populated urban clusters. Hence, the intercity rail will be the focus point for the construction of high-speed railway network during the “13th Five Year” period.

Being a new international strategic framework for China, the “Belt and Road” has brought many development opportunities to the PRC economy. The construction of rail transit has gradually become a global trend. More than 100 countries around the world will invest in railway construction and the annual average procurement needs of rail transit equipment are expected to exceed USD70.0 billion. The PRC has been cooperating with a number of countries in the establishment of the Silk Road Fund, Asian Infrastructure Investment Bank and BRICS Development Bank, while providing financial support for infrastructure construction in Asia Pacific and other developing countries in the world. China’s high-speed railways undertakes the mission of promoting domestic high-end equipment to the world, which facilitates the overseas development of relevant enterprises.

China’s economy has great growth potential in the future. The “Made in China 2025” is an upgraded manufacturing plan, comprising four major changes, one main theme and eight key strategies. The four major changes include the change from element-driven to innovation-driven; the change from low cost competitiveness to quality competitiveness; the change from crude manufacture that has high resources consumption and pollutant emission to green manufacture; the change from product manufacturer to service manufacturer. The one main theme represents digital, internet-based and smart manufacture that fully integrates information technology and manufacture technique. The eight key strategies are to promote digital, internet-based and smart manufacture; enhance product design capability; optimize the innovation system for manufacture technique; strengthen the manufacture base; boost product quality; implement green manufacture; nurture enterprises and industries with global competitiveness and develop the modern manufacture and service industry. In the short term, the industrial strategy will focus on maintaining inventory and increasing exploration. However, in the mid-to-long term, all

PART I COMPANY PROFILE AND GOVERNANCE

businesses of CRRC Times Electric have promising prospects and the industrial strategy will center on accelerating the development of green, smart and digital products, speeding up the expansion of general mechanical and electric contracting capacity, promoting innovation and technology-driven development, strengthening the market leading position and evolving into the top players in all niche markets.

- *Challenges*

While the high-speed railway, intercity rail and urban transit sectors are flourishing, we notice the declining demand in the domestic locomotive market, which will affect the core business of the Company to a certain extent. Meanwhile, as foreign and local enterprises enter the market, we will be exposed to great pressure in terms of market competition and product price. The introduction of new products and new models means that matching capability will be crucial to corporate development in the future. The Company will face challenges in enhancing resources efficiency and optimizing resources allocation.

- *Our Solutions*

1. In view of the declining demand from the mainline railway market, the Company will sustain corporate growth through developing new industries while fully explore new growth points in the railway sector, such as the maintenance and repair industry. It will also expand new products and fields to enrich the railway product mix.
2. The operating profits of the Company decreased under the effect of industrial restructuring. Against the downward pricing trend in external market, it will undertake the huge responsibility to enhance internal operation and management. It will adopt a calm approach to develop internal strengths, explore internal potential, lower cost and boost efficiency.
3. In terms of matching development of the general mechanical and electrical contracting and maintenance and repair industry, the implementation of proprietary signal system project and the mass production of electric motor system for passenger vehicles, the Company will build new capabilities to adapt to new business model and enhance the profitability of new products, therefore it will increase input in products that go along well with the new model and the growth of the vehicle industry.
4. It is necessary to assess whether reasonable internal resources allocation is achieved. In the future, the Company will have to optimize the mechanism for attracting high-caliber talents, while determining priority in industrial development for enhancing resources allocation, so as to devote more resources to prioritized industries.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

I. TECHNOLOGICAL INNOVATION

The Company's research and development ("R&D") management always adheres to the tenets of serving technological innovation and launches various activities to enhance management performance, including excellent management and refined management. These activities not only increase the intensity, breadth and depth of scientific research project management, qualification and result management, external scientific technology reporting management as well as management of expertise and engineering development and standardization, but also further increase the effect of cost reduction and efficiency enhancement, so as to revise and optimize the related management procedures and systems and thus enhance the working efficiency and quality, thereby safeguarding the orderly development of daily work and steady advancement of various key works at all levels.

1. Introduction to Technical Research and Development

1.1 R&D Management Mechanism

The Company attaches great importance to the establishment and improvement of R&D management mechanism. The Company has established a Technical Committee, which comprises the deputy general manager in charge of technology, deputy general engineer, chief expert, and technical supervisors in all business units (departments). The Technical Committee provides support for the decision making in relation to scientific research technology of the Company and thus improves the Company's organizational structure for technology management (see the following chart – R&D Management Institution). By using the internationally advanced CMMI and other management methods, the Company established Handbook for Integrated Product Development System, improved management regulations such as Completeness of Product Drawing and Design Document, enhanced the management ability over products' lifecycle and solidified such ability to its PLM management platform, and realized and planned for standardized management of processes and assets. The Company also fully implemented project management and budget management for scientific researches, and established a comprehensive set of rules and regulations for project management and budget management – Administrative Measures for Scientific Research Projects, Measures for Assessment and Incentive of Significant Scientific Research Projects and Administrative Measures for Budget of Scientific Research Projects. All processes of projects from proposal, execution to completion were under strict management and control, which has greatly enhanced the quality and efficiency of the completion of these projects.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

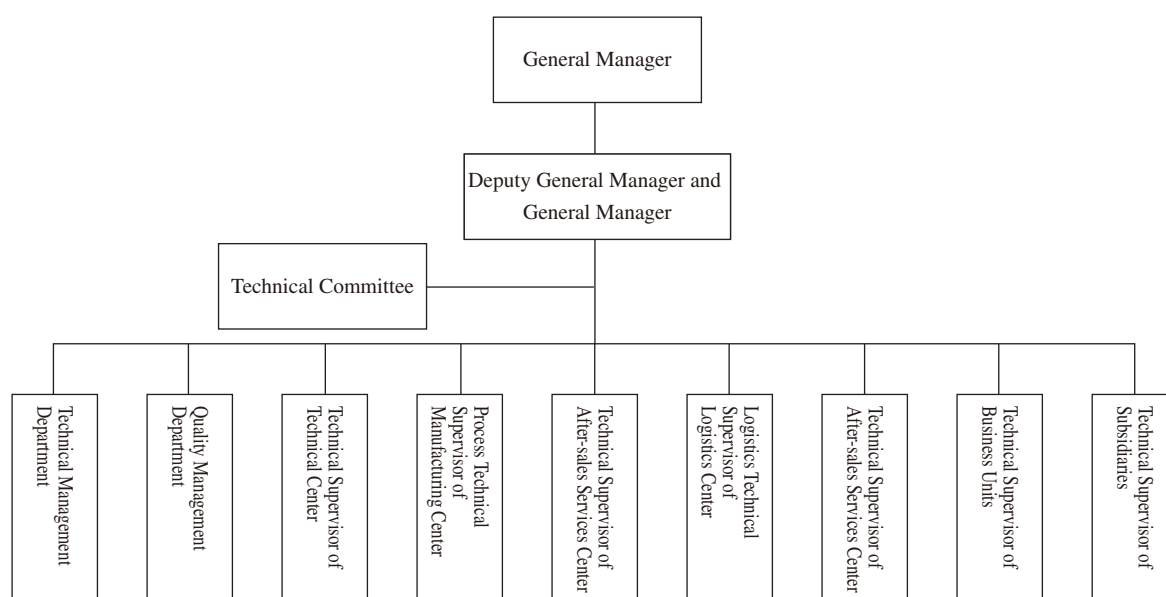


Chart: R&D Management Institution

1.2 Investment in Scientific Research

Investment in technological innovation provides basic guarantee for strengthening the Company's independent innovation ability. The work in this regard adheres to two main concepts of "innovation" and "benefit", aiming to achieve sustainable development of the Company and striving to set another new record in operation results by leveraging its technological R&D. The Company continued to increase its investment in technological innovation, which accounted for over 8% of sales amount in the year. In 2017, the Company approved 672 proposals of scientific research projects.

1.3 R&D Team and Advantages of Hardware Resources

The Company's scientific research and technological personnel accounts for over 50% of the total number of employees. On the basis of highly educated talents, a professional research and development team with high qualities and efficiency has been developed through a comprehensive talent training system.

The Company also has strong capabilities in scientific research and experiment, testing and inspection and system production, and owns a number of specialized production bases. Among which, the Company's power semiconductor production base mainly produces bi-polar power rectifiers, thyristors, GTO and IGCT, at the same time the first high-power IGBT packaging manufacturing base is built in China. The inspection and testing system is comprised of over 20 laboratories, including vehicle-mounted electrical systems lab, electrical machinery lab, large-scale vibration testing system lab, electrical equipment reliability and environmental engineering lab, passenger car electrical system lab, large-scale engineering machinery electrical system lab, networking product consistency lab, 3G information technology application lab etc., covering research test, type test and factory test in all fields.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

2. Technological R&D Results

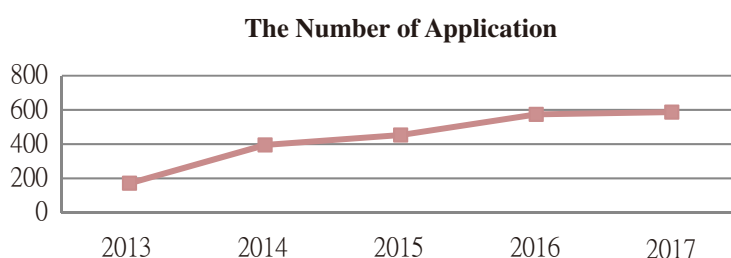
2.1 Reporting

In 2017, approximately 30 external technology projects were approved, including: 8 national key R&D projects, 4 provincial-level and ministerial-level projects, 5 China Railway projects, 2 CRRC special major projects and 9 CRRC major and key projects. Under the “Advanced Rail Transit” special project, the Company successfully took the lead in the “high-performance traction power supply system and technology” project, played a crucial role in four projects on the “high-performance power converter for rail transit”, “vehicles with new power supply standards and onboard energy storage system for rail transit”, “design, energy saving and environmental friendly technology of rail transit for whole-life cost” and “key technology for expedited freight in rail transit”. Meanwhile, the Company also achieved outstanding progress in various areas outside the industry. It successfully led 2 key special projects and 2 research programs on new energy vehicles, technological enhancement and industrialization of key basic materials, research and application of generic technology on National Quality Infrastructure.

2.2 Patents

In 2017, the Company applied for a total of 587 patents, with 308 patents authorized, including 172 invention patents. By the end of 2017, the Company has cumulatively applied for 1,649 patents, 725 of which were invention patents.

Year of Application	Number of Application
2013	171
2014	395
2015	453
2016	574
2017	587



2.3 Awards

During the year, the Company was successfully granted 11 provincial-level and ministerial-level or above awards. Among those awards, the Company has been awarded with 1 National Science and Technology Progress Award, 6 Hunan Province Science and Technology Progress Awards/Technology Innovation Awards, 3 Science and Technology Awards issued by China Railway Society and 1 Technology Award issued by China Power Supply Society. It also completed 9 scientific achievement appraisal projects.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

3. Management of Significant Projects

In order to ensure the sustainable development of its significant scientific research projects, the Company insisted on the rolling development mechanism of significant projects and continuously injects new ideas and concepts to guarantee the continuous enhancement of technical strength for scientific research. In early 2017, after several reviews by the experts from the Technical Committee, it was finally determined that 64 scientific research projects with great strategic significance or economic benefits would be added as significant projects. The Company also implemented an assessment and incentive system for significant scientific research projects, put into practices the weekly reporting, monthly reporting and monthly regular meeting system and effectively pushed forward the process control and objective management of significant projects, which facilitated the annual targets for 102 ongoing significant research projects in 2017. Through strict process control, the general progress of projects was well under control; of which 58 projects were completed, with a completion ratio of 98.6%.

Examples of major project implementation:

3.1 Research and Development of Electrical Systems for Power Centralized EMU

In 2017, the Company mainly completed the type testing on samples of the traction converter, converter for electric train supply and network control system. It also facilitated the completion of the whole vehicle type testing. The project applied highly integrated traction converter technology, which not only improved power density significantly, but also greatly enhanced the availability and reliability in system malfunction due to the addition of isolation switch technology to the intermediate direct-current circuit.



3.2 Research and Development of Electrical Systems for China's Standard Emus

In 2017, the Company mainly completed the type testing, research testing and whole vehicle type testing of traction converter, network control system and external power box. It also commenced the appraisal of passenger service.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY



3.3 Research and Development of Electrical Systems for 160 km/h and 200 km/h Inter-City EMU in Four-Cart Arrangement

In 2017, the Company mainly completed the trial production and testing of the prototypes of traction system and network control system for the 160 km/h and 200 km/h inter-city EMU in four-cart arrangement. It also completed the production and delivery of intercity EMU products as well as the in-house commissioning and ring circuit testing of the whole vehicle. The project adopted integrated design for main and auxiliary traction converters and applied modular design to combine the main converter, auxiliary converter and charger unit. This catered for the diverse needs for frequent inter-city EMU with large passenger traffic, short stopping time and rapid entry and exit of station in domestic city clusters and mega metropolitan regions.



3.4 Research and Development of Electrical Traction System for Yanfang Line of Beijing Subway

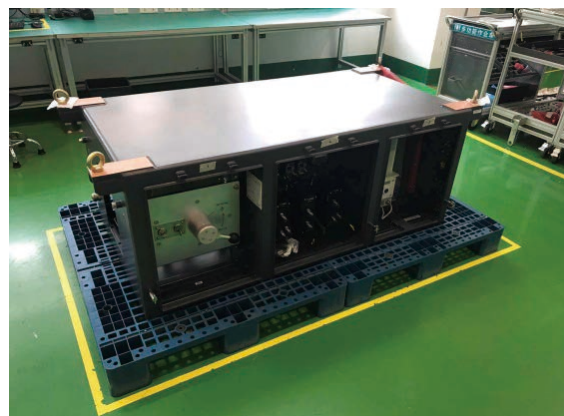
In 2017, the Company mainly completed the commissioning, onsite testing and trial operation for the main lines. On 30 December 2017, it commenced passenger service and the traction system has been running well. The project completed the research and development of the unmanned electric traction system for the Yanfang Line of Beijing Subway, which filled the gap in unmanned traction system of the Company and the country.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY



3.5 Research and Development of Dual Voltage Electrical Traction System and Auxiliary Power Supply System

In 2017, the Company mainly completed the production and routine inspection of the prototype of the dual voltage electrical traction system and auxiliary power supply system. It also completed the type testing on components and test program for the system portfolio, which passed the owners' evaluation. The project adopted dual voltage power supply with a maximum operating speed of 130 km/h. It is the first dual voltage railway traction system product developed and widely applied by the Company.



4. Innovation Influence

In 2017, the Company strived to build a leading development platform and became a member of the IEEE Standards Association. It published a total of 20 international, national and industrial standards and received 1 China Patent Excellence Award. The Company was selected as one of the most influential enterprises in the PRC's electronic information industry and shortlisted as a top 100 corporate in terms of revenue from electronic information and software business in the country. It kept abreast of the latest trend in the world and advanced the research and development of the fully automated driving platform. Furthermore, it achieved major progress in special technology research, which included new railway maintenance machineries related products, IGBT, LKJ, big data-based smart maintenance, permanent magnet traction system and electromagnetic compatibility.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

II. PRODUCT RESPONSIBILITY

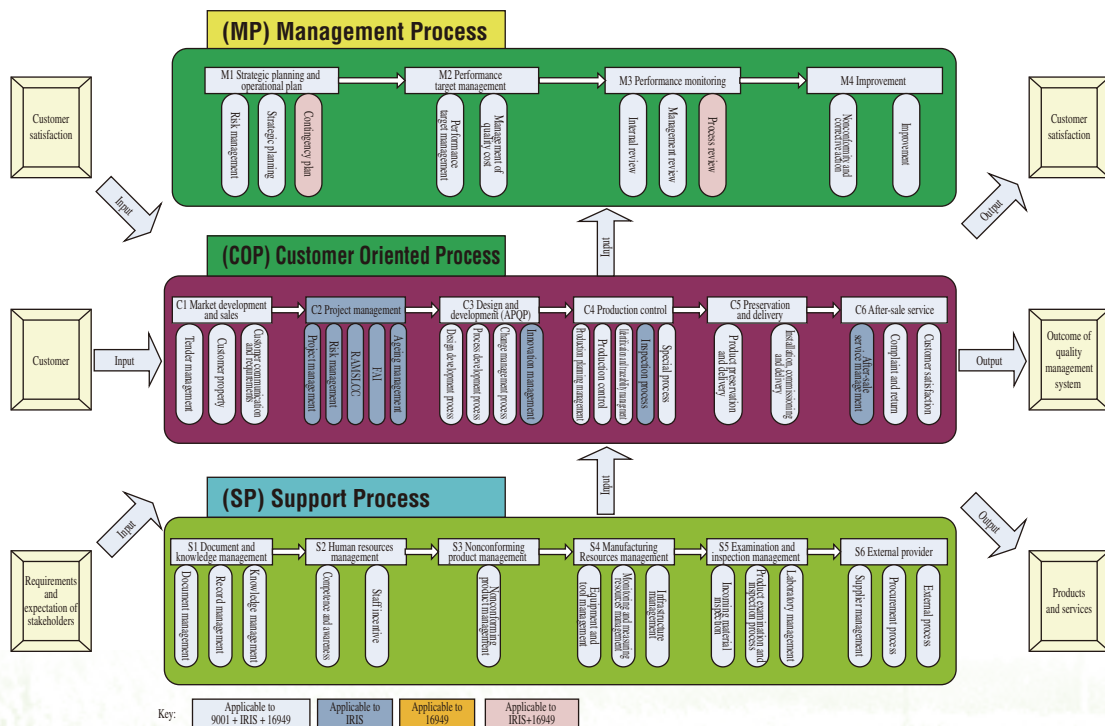
1. Product Quality Management

The Company has always considered product quality as its core value, for it is essential to the very existence of a corporation. Adhering to the policies of “Optimizing platform for sharing of knowledge, Improving the ability of technological innovation, Focusing on quantitative analysis of processes, Setting up life cycle management, Insisting on enhancement of scientific prevention, Enhancing awareness of quality and safety, Paying attention to details and Pursuing customer satisfaction” for quality of its product realization process and customer services, the Company continuously carries out researches and fosters on-going improvement to achieve effective control on all aspects and processes from product design to delivery through a series of assurance mechanisms.

1.1 Quality Management System and Certification




The Company has established a complete quality assurance system based on the ISO9001:2015 quality management standard. It has also complied with the requirements of ISO/TS22163 standard (IRIS 03 International Railway Standard) to implement quality control during the production process of its products and the realization process thereof, while keeping suppliers under strict management and actively promoting project management and RAMS (reliability, maintainability, availability and safety) management.

Quality System Management Mode:




PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

System certificates:

Types of system	Certificate	Description
ISO9001		<p>The Company passed the ISO9001:2000 version quality assurance system certification of British Standards Institute Limited (BSI) in 2005.</p> <p>It passed the review for the certification (2008 version) in November 2009.</p> <p>In October 2010, TUV Rheinland (Guangdong) Co., Ltd. carried out the review.</p> <p>The Company passed the ISO9001 certification of Bureau Veritas Certification (Beijing) Co., Ltd. in December 2014.</p> <p>The Company passed the review for the certification of German DQS (2015 version) on 28 October 2017.</p>
International Railway Industry Standard (IRIS)		<p>In October 2009, the Company passed the IRIS 01 certification of TUV Rheinland (Guangdong) Co., Ltd.</p> <p>It passed the IRIS 02 certification in October 2011.</p> <p>The Company passed the IRIS Certification of Bureau Veritas Certification (Beijing) Co., Ltd. in October 2014.</p> <p>The Company passed the review of German DQS in October 2017.</p>
CMMI Level 3		<p>The Company passed the CMMI-system Level 3 certification in December 2009.</p> <p>It passed the supervisory review in December 2012 and December 2015.</p>

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

Types of system	Certificate	Description
EN15085-CL1 (Welding Certification System for the Rail Transit Industry)		<p>The Company passed EN15085-CL4 certification in November 2012.</p> <p>German SLV French BV German TUV</p> <p>The Company passed the EN15085-CL1 certification of Bureau Veritas Certification (Beijing) Co., Ltd. on 5 July 2014.</p> <p>The Company passed the EN15085-CL1 certification of German TUV in 2017.</p>

Quality Awards:

First Hunan Governor Quality Award in 2011

Industrial Enterprise Quality Benchmarking Enterprise by Ministry of Industry and Information Technology in 2013

Hunan AA Enterprise for Industrial Product Quality Classification Regulation in 2013

AAA Enterprise of Hunan for Quality Credit in 2013 and 2017

2nd China Quality Award in 2016

Excellent enterprise of Hunan Province for quality management group activities for seven consecutive years

National excellent quality management group for seven consecutive years

1.2 Quality Monitoring Method

The Company has set up and improved a sound and comprehensive system of quality management and assurance system throughout the product life cycle including marketing, design and development, procurement, manufacturing and product services etc. at a preliminary stage through a number of system certifications and effective monitoring of its processes.

Process Monitoring:

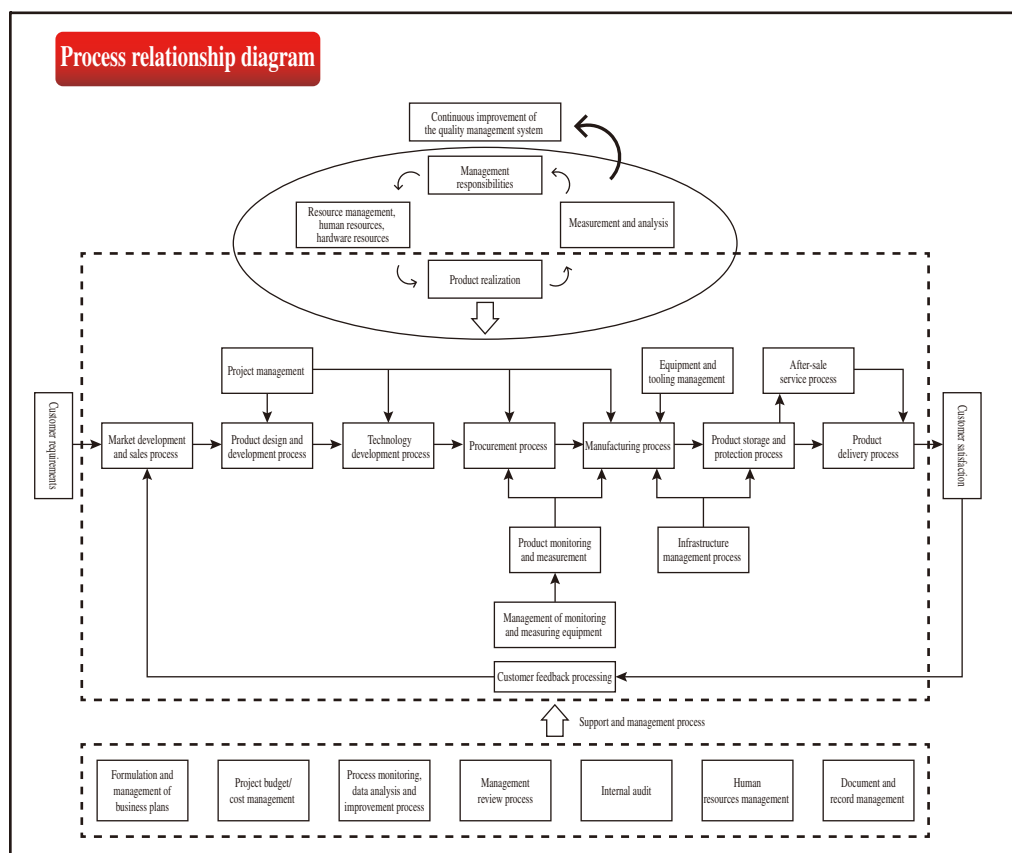
– Quality Indicators for Measurement and Continuous Improvement of System

The Company has established an indicator measuring system for the entire process, including sales, R&D, manufacturing, logistics, procurement and service, etc., which has enabled the Company to comprehensively define and quantize process quality and carry out measurement and monitoring.

– Internal Audit and Inspection

The Company has established a multi-dimensional continuous improvement system to ensure quality control through process review, process testing, internal and external audits, regular management review, ad hoc quality inspection, data analysis, process improvement, etc.. With this, the Company can therefore identify opportunities for improvement and request for delegation of responsibilities, implementation of plans as well as tracking and verification for matters which require improvement, with a view to guaranteeing the achievement of the improvement goals and ensure continuous improvement of the whole quality management system.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY



– Quality Management of Design and Development Process

Complete Product Development Process System:

The system supports the management and quality control of the entire lifecycle of mechanical products, electric products and software products development. Project development is carried out on a project basis and quality control is carried out throughout the development including design, operation, testing and the achievement of design from user requirements to product model finalization.

Platform-based development for Product and Design:

With continuous accumulation and building up relatively complete databases in terms of standards, guidelines and examination of products, technologies and processes, the Company incorporates the databases into the IT information systems and applies them to quality control of new product designs. The Company has also built up a platform for homogeneous product lines featuring huge pool of data that has been widely used and undergone examination for its reliability so as to improve the quality and reliability of product design.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

– Quality Management for Production and Manufacturing Process

The Company attaches high emphasis on improvement of technique and adheres to the guiding principle of “paying attention to details” and fully implements refined production by adopting an on-site oriented approach. Accordingly, it establishes standardized technique development process, technique management procedures and working standards for each position. Personnel holding relevant certifications are required for key positions.

A complete set of documentations for operation and inspection:

The Company provides detailed and comprehensive guidebooks of operation for the site in which each step of product production technique is prescribed with illustrations. With which, workers at the site can clearly and easily understand each step and avoid faulty operations. Meanwhile, corresponding guidebooks for product inspection, inspection checklists, QC schematic diagrams, etc. are also maintained at the site so that workers can conduct inspection with photos taken for each key process in accordance with these documentations.

Complete Technical Testing System:

The Company’s manufacturing bases are equipped with a complete technical testing system including AOI, flying probe test, online test, X-RAY inspection to check the welding quality of circuit boards and high and low voltage lines inspecting device to check the quality and reliability of wiring. A number of technical programs and measures are adopted to check the sealing features of cabinets. The above measures ensure that the whole production process of products is timely and effectively monitored from a single board to the whole set including cabinet processing.

Stringent Control over Electronic Components:

The Company has also established a sound ESD and MSD control system for the manufacturing bases to exercise stringent control over electronic components in terms of workers, machines, materials, methods, environment and measurement, which in turn helps ensure product reliability.

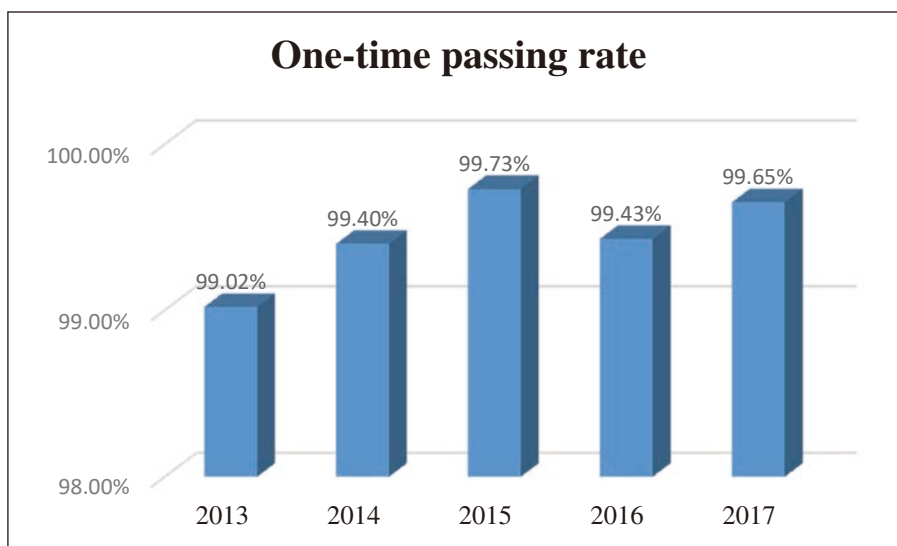
Sound Management System of Outsourcing Suppliers:

The Company has set up an outsourcing control group and adopted an inspection mode pursuant to which on-site inspectors will carry out inspection at the warehouse. In addition, the Company also established a supplier on-site inspection system and held meetings with outsourcing suppliers for the discussion of supplier performance and quality improvement on monthly basis. Therefore, the Company improved the quality management mechanism in terms of development, prototyping, small scale trial production to mass production by outsourcing suppliers.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

– Product Delivery Quality

The one-time passing rate of the Company's products remained at above 99% for the last five years.



2. After-sales Service

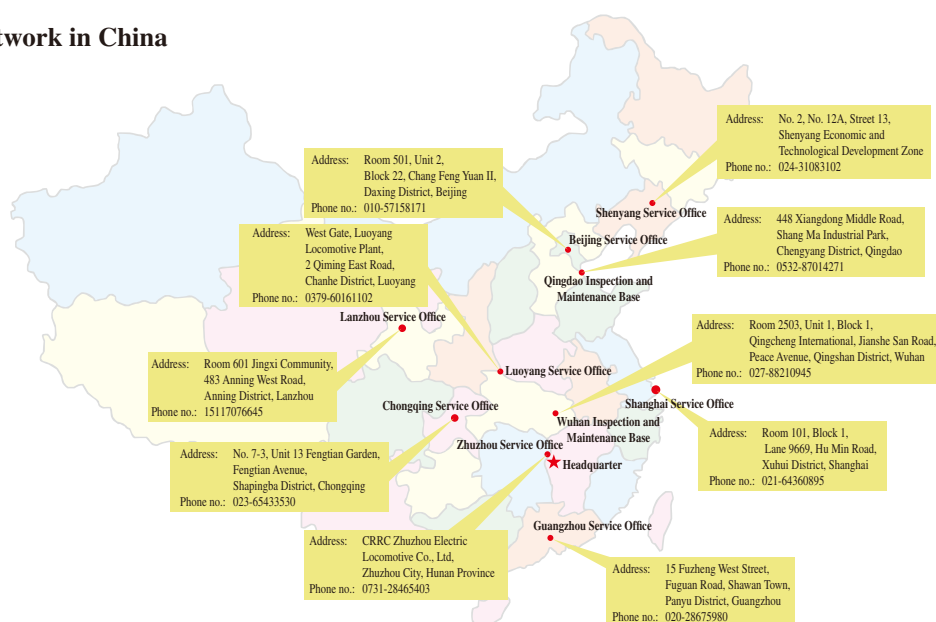
2.1 After-sales Service Network

The Company has established a sound after-sales service network with global coverage. It has set up 9 service offices in China, including Beijing, Shanghai, Guangzhou, Zhuzhou, Wuhan, Chongqing, Shenyang, Xian and Lanzhou, as well as three overseas offices in Southeast Asia, Africa and Americas, which formed the global after-sales service network covering major customers, regions and products. Taking into account the overhaul plan of China Railway Corporation, it completed the preliminary planning for the domestic maintenance business. By setting up inspection and maintenance branch in Qingdao and inspection and maintenance bases in Guangzhou and Wuhan, it acquired advanced inspection and maintenance capabilities for its own platform products.

Upholding the philosophy of “providing fast, effective and satisfactory services”, the Company has launched a service brand, namely “LUREEN”, and offered services without charges within the warranty period and services with charges upon expiry of warranty period as agreed with customers. The Company has also set up a three-level service management model, under which the service network is linked up by the Company's service headquarters, service office and service station. Should our customers have any requirement, the Company guarantee to promptly respond with staff deployed to the site in 8 hours and solve problems within 24 hours to gain customers' confidence.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

Service Network in China



2.2 After-sales Service Implementation System

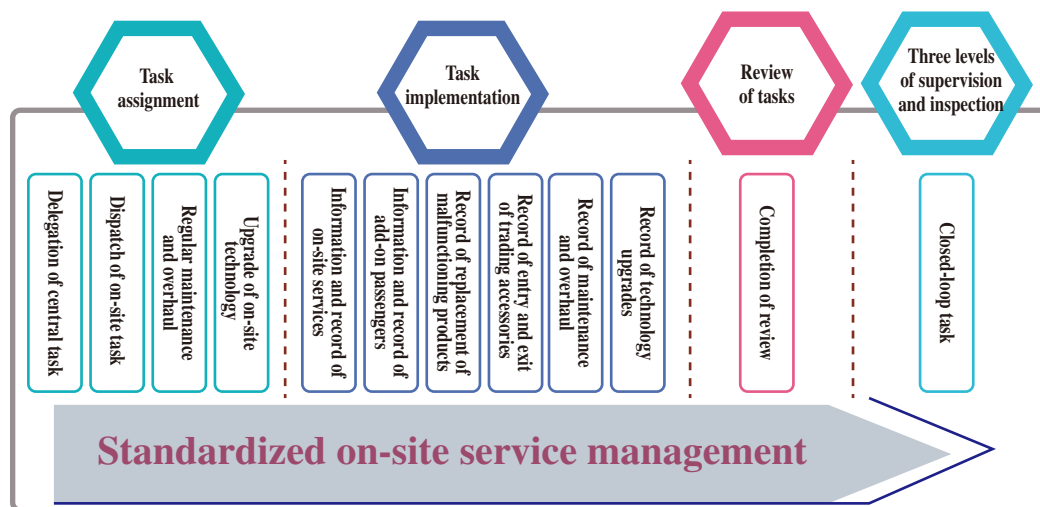
The Company has established an after-sales service information platform to provide technical support and systematic training for customers. Meanwhile, it also serves as an effective platform to standardized and systemized services.

With the after-sales service information platform as our support, we have set up two hotlines: 800 878 8968 and 400 8899 927, and 64 workstations to maintain communication with customers at any time and ensure after-sales services, technical supports, business consultancy, quality feedbacks, complaints, suggestions, and comprehensive information consultation at all times.

Based on Capability Maturity Model Integration for Services (CMMI-SVC) and industry best practice, the Company established the After-sales Service Development and Delivery System. Leveraging the after-sales service information platform, it has set up an onsite product service standard system and a standardized onsite services operation process. We have also issued Standards on on-site services, Standards and Process on Personnel Management, and Standard and Process on Product Maintenance and Repair, and developed a work order system.

The Company has set up a complete operation and monitor workflow from customer feedback information to the conclusion of a case, with which, no matter from occurrence of the incident to task assignment, from task implementation to task efficiency assessment, from troubleshooting management to use of parts, and from task completion quality to customers satisfaction, the situation is under an all-round control.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY



2.3 After-Sales Service Team Management

In order to align service staff's skills with product upgrade, the Company adopted "mentoring" system and conducts "apprenticeship" training; organized and commenced the preparation and production of the troubleshooting manual for key products and video learning materials, which classify failure mode in detail, analyze and set forth overhaul procedures in list form so that the troubleshooting process is clear with well-defined position and various case studies for reference. These data can also be used as the troubleshooting guideline for on-site service staff. Meanwhile, the Company has implemented the LUREEN certification system for job qualification and skills assessment system. Relevant certificates are required for employees assuming duties, which allowed the Company to enhance the comprehensive quality and professional skill level of staff on an on-going basis.



PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

3. Customer Satisfaction Survey and Customer Complaints

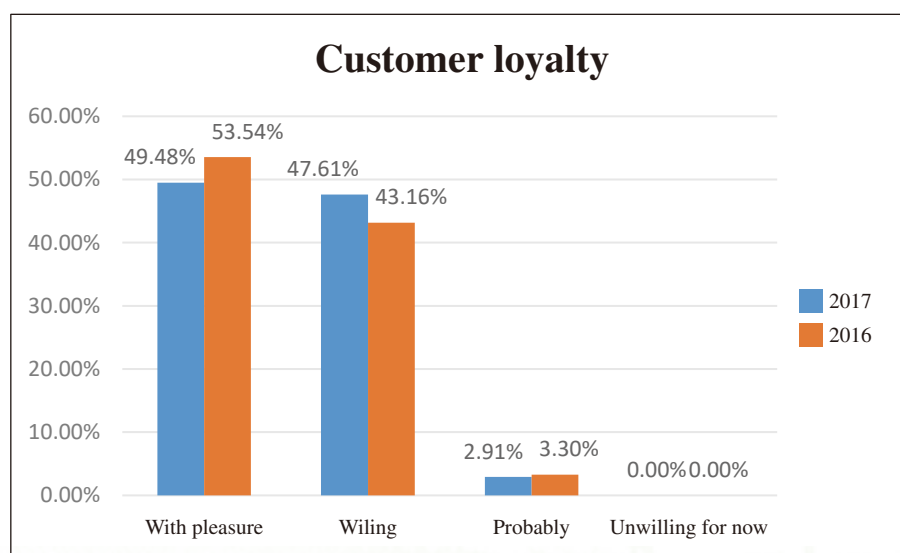
3.1 Customer Satisfaction

The Company always takes the continuous improvement of product and service quality and continuous enhancement of customer satisfaction as its goal. Every year, the Company takes many forms to collect customers' opinions and suggestions on our products and services, including questionnaire survey, interview of customers, telephone inquiry and product promotion event, and immediately takes corresponding measures to make improvement.

The general principle for 2017 external customer satisfaction survey of CRRC Times Electric was: **focusing on rail transit products while giving consideration to other traditional products**. Products under this survey mainly include railway transportation electric drive control system, security monitoring devices, rail engineering machinery, etc.; and vehicle types involved in this survey include urban rail transit, harmony type high-power alternative transmission locomotive, high-speed EMUs and other traditional products such as testing equipment. This survey involved 148 users, including 18 subway corporations, 14 locomotive depots, 8 EMU institutes, 9 car depots, 10 main engine plants/overhaul plants, 6 road bureaus, 8 local railway users, 16 track maintenance inspection institutes (machinery division), 22 track maintenance divisions and 37 power supply sections. This survey covered 100% major product types and over 90% of our users. Based on customers' feedback and survey data analysis, the assessment indicators on the Company's general customer satisfaction index, product quality and service quality all scored above 86.

3.2 Customer Loyalty

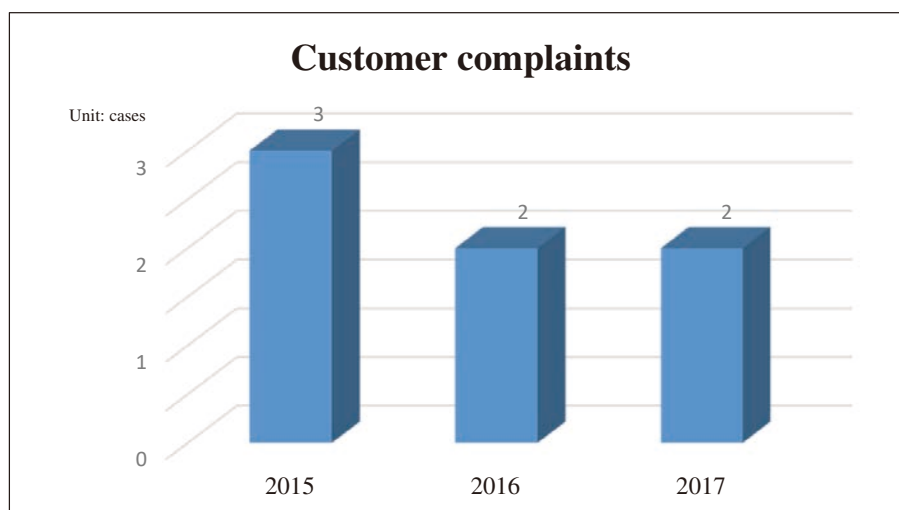
Customer loyalty was 97% for 2017, which was basically in line with than for 2016 (96.7%).



PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

3.3 Customer Complaints

The Company attaches great importance to the settlement of customers' complaints and establishes a customers' complaint settlement team led by the quality management department. This team gives fast response to each customer complaint, timely understands customers' demand, conducts in-depth investigation of and analysis on problems, puts forth effective solutions and improvement methods, eliminates problems from the system operation, and replies to customers in a timely manner to ensure their satisfaction.



4. Product Safety

As a large-scale rail transit equipment manufacturing enterprise integrating research and development, production, distribution and sales and a core supplier of components for railway locomotive vehicles, the Company's products are widely used in high-speed trains, and the safety and reliability of its products are therefore directly related to the lives and safety of millions of passengers. Product quality equals to safety, and safety is the life assurance of millions of passengers, which is also the golden rule for enterprise's survival. The Company has always regarded product safety as the core of its product quality work. Based on the technology security policy of **“Complying with railway safety standards to establish product safety concept; Understanding product safety effectiveness to improve safety rules and norms; Producing safe and reliable products to ensure train traffic safety”**, the Company implements strict control measures on various aspects including marketing, design, procurement, production, delivery and after-sales, and resolutely puts an end to product quality and safety problems.

4.1 Guarantee of Product Safety (Reliability)

☆ **Completion of software safety certification for major product types.** Three major product and software types of the Company, namely the drive control system, auxiliary converter control system and microcomputer network control system, passed the safety certification review of the German TUV headquarters and obtained the SIL 2 certificate, representing that the three major product types of the Company have met the requirements of the functions and safety integrity level and are well-positioned to enter the international rail transit market.

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY



☆ **Commencement of overseas RAMS projects.** Based on RAMS analysis, the Company ensured the RAMS capability of the products by incorporating reliability, availability, serviceability and safety analysts in the whole process of product development.

☆ **Introduction of professional serviceability software Delmia.** The Company promoted software application with a focus on relevant business units, which greatly enhanced the manufacturability and serviceability analysis of the products.

☆ **The completion of failure mode database of traction system, auxiliary system and network control system of major product types.** The system integration of the FRACAS (QMS) system generated structured statistics on failure, thereby providing strong support to big data analysis on product failure.

4.2 Product Certification

In 2017, the Company has passed the CRCC certification for a total of 23 models of railway products under 5 key categories:

No.	Types of Product	Model & Quantity	No. of Certificate	Issue Date	Issuing Agency
1	Charger for passenger trains	2	CRCC10217P10959R2L-4	2017/11/16	China Railway Test & Certification Centre
2	Inversion power source for air conditioning of passenger trains	5	CRCC10217P10959R2L-5	2017/11/16	China Railway Test & Certification Centre
3	Network control system for AC locomotives	7	CRCC10217P10959R2L-22	2017/9/1	China Railway Test & Certification Centre
4	Central processing unit for AC locomotives	6	CRCC10217P10959R2L-23	2017/9/1	China Railway Test & Certification Centre
5	Charger for passenger trains (including single-phase inverter)	3	CRCC10217P10959R2L-25	2017/11/16	China Railway Test & Certification Centre
Total /		23 /		/	/

PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

4.3 Improved Test and Verification System

☆ Approval and Authorization

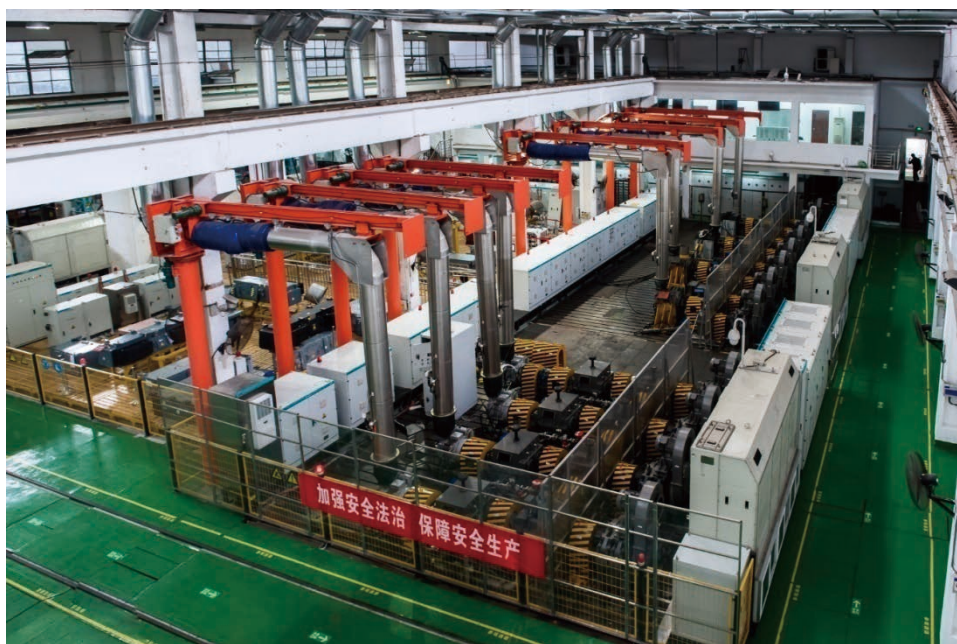
The Company invested in and constructed labs with relevant qualifications, which are currently used as:

- Laboratory for China Metrology Accreditation (CMA)
- Accredited lab of China National Accreditation Service for Conformity Assessment (CNAS)
- Collaborative lab for China Railway Test & Certification Centre (CRCC)
- Traction and Control of EMU and Locomotive of National Key Lab

☆ Inspection and Testing Capability

Traction system laboratory

The traction system laboratory is capable of conducting all testing and research of portfolio system based on the latest requirements, such as the IEC61377 family of standards. The temperature rise test of route distribution network, energy consumption test of route distribution network, traction and drive conversion test, anti-skid test as required by the latest standards and regulations are available to meet the national whole vehicle testing requirements of converter, traction motor and control system applied in high-speed EMUs, urban railway trains, electric locomotives, diesel locomotives, industrial transmission and other fields.



PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

☆ *Environment and sustainability laboratory*

(1) Climate and environment testing capacity

The climate and environment testing system is capable of conducting thermal, thermal change and thermal shock test, steady state damp heat test, alternating temperature and humidity test, icing test, salt spray test, dust and water resistant test (IP68 and below), operational condition, insulation and dielectric voltage withstand test and temperature rise test of electric and electronic products based on national standards and IEC standards, and the full power test for 150 kW inverters with a weight of 6,000 kg at high and low temperature.

(2) Testing capability in mechanical environment

The mechanical environment testing system meets the requirements of vibration and shock testing of electric traction system and equipment, network control system and equipment, and other products for locomotives. It is also capable of conducting vibration test and data analysis for onsite operation. It has comprehensive portfolio of environment and sustainability testing of parts and leading testing capability in the industry.



PART II TECHNOLOGICAL INNOVATION AND PRODUCT RESPONSIBILITY

☆ *Electromagnetic compatibility laboratory*

Electromagnetic compatibility laboratory is capable of conducting tests on strength of magnetic field, electromagnetic radiation, disturbance voltage at power supply end and disturbance current. The testing frequency of the EMI testing system is 18 GHz, while that of the EMS testing system is 8GHz. It is capable of conducting radio-frequency and electromagnetic field radiated immunity test at 30 V/m, which covers the 4G and 5.8G fields and outperforms industry peers. In particular, the 10m semi-anechoic chamber met the anechoic testing requirements for major equipment such as inverters and air conditioners for locomotives.



☆ *Network and wireless laboratory*

The network and wireless laboratory has formed the leading network consistency testing system, wireless communication testing system and point responder testing system in the PRC. It is capable of conducting consistency test of route network communication products for urban transit, locomotives and EMUs, radio conformance test of on-board WiFi and GSM/GPRS/GSM-R/WCDMA wireless communication equipment, and dynamic simulation test of wireless communication equipment to ensure transmission quality of train-ground communication and reliability of on-board network communication.



PART III ENVIRONMENTAL PROTECTION

I. ENVIRONMENTAL PROTECTION POLICY

We pursue the policy of human-concern, continuous improvement, environmental protection, health and safety.

II. DATA ON ENVIRONMENTAL PROTECTION PERFORMANCE MANAGEMENT

1. Discharge of Industrial Solid Waste and Hazardous Waste

Our Company sorts, collects and stores solid wastes in the same manner as general industrial solid wastes and hazardous wastes. Our Company will put priority to the recycling of the general industrial solid wastes, whereas unrecyclable wastes will be sent to qualified units for hazard-free disposal and hazardous wastes will be sent to the relevant units responsible for hazardous waste treatment for disposal. Our Company strictly follows the relevant national laws, regulations and policies in the process of hazardous waste treatment. Hazardous waste transfer sheet will be completed and reported to Zhuzhou Environmental Protection Bureau for record upon transfer. During 2017, the Company generated a total of approximately 160 tons of hazardous. A qualified treatment rate of 100% was achieved.

2. Discharge or Emission of Waste Water and Exhaust Gas in Compliance with Required Standards

Year	Volume of wastewater discharge (ten thousand tons)	Volume of wastewater treatment (ten thousand tons)	Compliance rate of discharge
2014	41	41	100%
2015	36	36	100%
2016	16	16	100%
2017	25	25	100%

In 2017, the Company strictly followed the relevant regulations and standards to manage sewage treatment and exhaust gas treatment facilities. All pollutant discharge data, as supervised and monitored under the entrustment of the Company and by monitoring authorities and government environmental protection administration, conformed to the emission standards. A compliance rate of 100% was achieved.

In 2017, the industrial wastewater discharge, emission of industrial exhaust, chemical oxygen demand and ammonia nitrogen emission of the Company amounted to approximately 250,000 tons, approximately 2.2 billion cubic meters, approximately 3 tons and approximately 1 ton for the year.

PART III ENVIRONMENTAL PROTECTION

3. Management Proposal for Environmental Protection Objective and Indicator

The wastewater system capacity expansion and renovation project commenced operation following the completion of construction works. The capacity expansion and renovation project enabled sorting and treatment of wastewater containing fluorine, ammonia nitrogen and cod, which enhanced treatment efficiency of the wastewater system. This ensured that the Company met the wastewater discharge standard and reduced environmental risk.



Wastewater treatment plant after renovation

III. ENVIRONMENTAL MANAGEMENT

1. Environmental Management System and Certification

The Company obtained the certification of ISO14001 environmental management system as early as in 2006. Through the process control under the environmental management system such as performance monitoring, internal audit, supervision, check, management review, the operational performance of the Company's environmental management system has improved continuously. In November 2017, the Company passed the upgrade review of British Standards Institution (BSI) for its ISO14001:2015 environmental management system certification.



ISO 14001: 2015 Environmental Management System Certificate

PART III ENVIRONMENTAL PROTECTION

2. Environmental Protection Products

In the process of production, the Company always advocates the “Green” concept of CRRC’s core brand value and vigorously promotes the use of environmentally-friendly materials and environmentally-friendly technologies so as to create environmentally-friendly green products for the society.

IV. DESCRIPTION OF ENVIRONMENTAL COMPLIANCE

Prior to project construction, the Company actively carried out environmental impact assessment of construction work so as to ensure that the environmental protection facilities and construction projects will be designed, constructed and put into operation at the same time.

During the process of production and operation management, the Company has complied with the relevant national, provincial and municipal environmental protection laws, regulations and statutes, and that of the Ministry of Environmental Protection, and timely obtained, updated and conveyed the relevant environmental protection regulations and standards. The Company conducted its day-to-day internal environmental protection management based on these new regulations and standards. Meanwhile, the Company actively fulfilled its corporate environmental protection obligations and implemented the principles and policies of national energy saving and emission reduction. There was no punishment imposed by the relevant departments due to any violation of environmental regulations.

V. ENERGY SAVING, CONSUMPTION REDUCTION AND COMPREHENSIVE GOVERNANCE

1. Energy Saving and Consumption Reduction

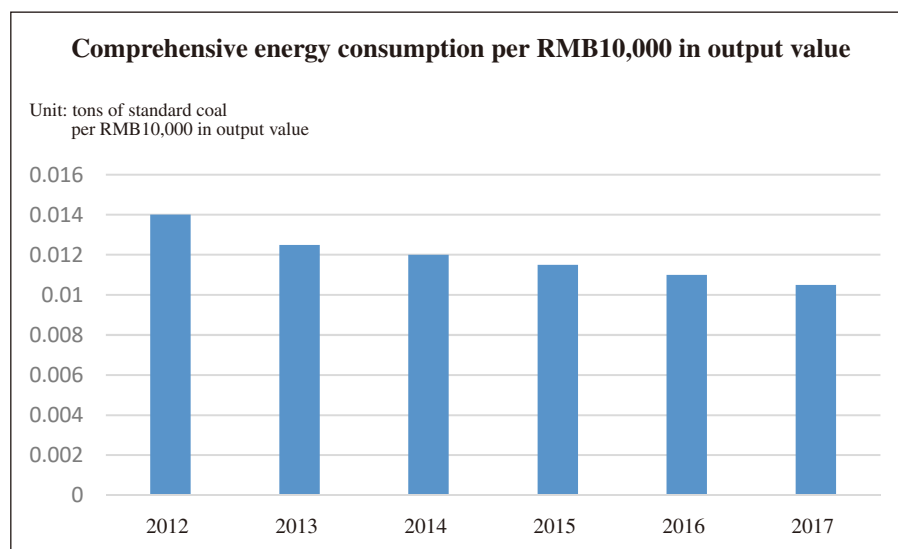
The Company upheld the mission of “Providing the community with safe and convenient essential power by promoting sustainable development with green transport and energy”, and put forward its energy management policy of “Maintaining excellence in social responsibility, nurturing first-class employees and serving the world with green products”. Based on the principle of energy saving and consumption reduction and through several initiatives for energy saving in technology, management, products and techniques, the Company actively fulfilled its social responsibility and obligation, which achieved the sustainable development goal of “energy saving and emission reduction” and realized the mutual benefit for the society, economy and environment.

In 2017, the Company focused on major energy consuming units and equipment as key control areas while actively introducing energy saving technology into technology design and production quota management. The Company will start from the optimization of all energy management system and continuously improve the energy management system and off-site coverage. It will strengthen evaluation and inspection criteria, continuously enhance energy management level and team building, and promote energy saving to boost energy efficiency. This demonstrates the Company’s active undertaking of responsibility and commitment to sustainability as a responsible enterprise.

In 2017, the total water consumption was 1.05 million tons and the comprehensive water consumption per output of RMB10,000 was 0.66 tons/RMB10,000.

Through various energy saving initiatives in 2017, the Company reduced the comprehensive energy consumption per RMB10,000 in output value by 4.5% over last year to 0.0105 tons of standard coal per RMB10,000.

PART III ENVIRONMENTAL PROTECTION



1.1 Full upgrade of energy management

(1) Gradual improvement of energy management informatization

The Company adopted online power consumption monitoring and data collection for the power distribution system at headquarters, which avoided manual mistakes and ensured measurement and statistical accuracy. For major energy consuming equipment, such as the air conditioning unit of the IGBT factory department, the Company installed measurement and collection device of energy data, and established quota of energy performance parameters for chillers and boilers. With reference to the statistics and analysis on energy performance parameters, the operation of the chiller system and the boiler system greatly improved, thereby laying a sound foundation for quota management of facilities.

(2) Training on energy management system

A total of 47 employees from different business units (including overseas companies) completed the training program for energy management system and passed the examination of internal auditor. This provided the team building foundation for developing a comprehensive energy management system.

(3) Optimization and refinement of appraisal system

Based on actual results of historical benchmarking, the Company optimized the rules of energy management assessment, and set up specific and quantifiable appraisal standards. The more scientific and reasonable benchmarking assessment was included in the monthly assessment of EPM platform system.

(4) Rationalization of energy management process

The Company optimized integrated corporate management, and combined and rationalized generic documents of the energy management system. It has combined five energy management generic process documents and rationalized six energy management processes.

PART III ENVIRONMENTAL PROTECTION

1.2 Wide Application of Energy Saving Technology

(1) *Incorporating energy saving standards and requirements in research and design, highlighting environmental friendliness and energy saving in product design.*

- (a) The Company has always prioritized green and environment-friendly design and adopted energy saving design in the course of operation. For example, it calculated energy commotion of trains for system and project design. It also set out environmental protection and energy saving standards in the technical specifications manual. Besides, it launched a large batch of energy saving and green products in the market. For instance, it reduced the weight, size and energy consumption of each inverter by 15.5%, 26% and 30% for China's standard electric multiple units.
- (b) During trial operation, the measured energy consumption was reduced by over 15% with China's first DC750V permanent magnet traction train, which was an energy saving and green model. Leveraging its outstanding technology, the train lowered whole vehicle noise by 3dB.



- (c) Energy saving requirements are included in the product technical design standards and requirements as design standards and requirements.

(2) *Incorporating energy saving technology transformation in production and quota management of major energy consuming equipment.*

- (a) The Company adopted quota management to control energy consumption, which maintained steady operation of production lines and greatly reduced energy use of equipment. In the first half of the year, the Company launched pilot quota management of IGBT cooling unit. By comparing the cooling capacity and power consumption of operating units, it determined the current energy consumption benchmark for operating equipment. It effectively implemented the "Energy Saving and Optimization of Cooling Plant Group Control", thereby achieving significant energy saving progress in part load conditions (in winters and during change of seasons) and taking leading position in the industry.

PART III ENVIRONMENTAL PROTECTION

- (b) A subsidiary of the Company, namely Baoji Times, optimized control means and measures by determining major energy use in each production and operation process. The company enhanced guidance and investment to save energy through technology. For example, it used propane instead of acetylene gas to reduce cost by 2 to 3 times, and replaced oven with induction heating equipment to shorten heating time and boost efficiency. It also shifted from manual operation to using tenon cutters, which increased efficiency by 2 to 3 times and drastically strengthened quality, while producing practically no defective goods. The purchase of cranes and other light lifting equipment to replace crown block reduced the use and frequency of crown block. The construction of production lines not only improved working environment and advanced automation, but also saved human resources significantly.

(3) *Energy saving technology transformation of major energy consuming equipment*

- (a) Upgrade of centralized dust collection system collecting to business units:

The Company replaced the old Y2 units with the new energy saving units for the centralized dust collection system, which reduced the overall power from 37 kW to approximately 15 kW. Under the same production conditions, power consumption would be around 60% less. In addition, the Company put the new system in a separate room. This was more environmental-friendly as it had several benefits such as lowered power consumption and better onsite noise control.

Before improvement



After improvement



PART III ENVIRONMENTAL PROTECTION

(b) Renovation of heating system for Y13 extrusion machines:

The Company renovated the pipes of the two existing heating systems for extrusion machines, so that the two extrusion machine system shared the same heating system. It reduced the number of heaters under operation and terminated a group of high power hydraulic pumps for energy conservation, which facilitated system integration and management of operational parameter. Besides, following the adoption of centralized heating, the energy utilization greatly improved. The Company also reduced power consumption for transporting heat transfer oil. Compared to historical record of the same period, the average monthly power consumption reduced by over 13,000 units.



(c) Coordination and planning of power supply for Tianxin Industrial Park.

(d) The manufacturing center organized the implementation of energy saving measures for air conditioners and aging equipment.

PART III ENVIRONMENTAL PROTECTION

1.3 Energy Saving Management

In order to raise energy saving awareness, the Company attached great importance to diversity of promotion initiatives and strived to create an atmosphere that encouraged energy saving and emission reduction, which facilitated the transformation from “opposition” to “self-awareness”. Based on the requirements and plans for energy saving and emission reduction, the Company held the “2017 Energy Saving and Consumption Reduction” campaign in the current year. It enhanced energy saving awareness among staff and educated employees on energy saving knowledge by putting up promotional posters and promoting “energy saving tips”, “benefits of energy saving” and “saving energy at office by starting with small actions”. As a result, the Company created an atmosphere where energy saving was incorporated in all aspects of all operations by all staff.



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2. Social Management and Comprehensive Governance

In 2017, the Company adhered to the main theme of “safe development” and focused on “developing a safe enterprise, maintaining a safe environment and pursuing safe corporate development”. While implementing the safety instructions and requirements of superiors and the Company, it strived to safeguard stability through comprehensive governance within the business units and undertook the political assignment of maintaining a safe environment. The Company effectively achieved its goals in terms of organization, system, assignment, mechanism, protection and emergency, thereby ensuring the safety and stability of the Company and subordinated business units, as well as the smooth progress of various tasks.

PART III ENVIRONMENTAL PROTECTION

2.1 Optimization of organizational structure and clear definition of job responsibilities

For the purpose of ongoing advancement and optimization of multi-level comprehensive governance and management and safety construction accountability as the Company's core public order and comprehensive governance management system. Based on the needs of organizational adjustment in the current year, the Company timely completed organization development for comprehensive governance, clearly defined job responsibilities and formulated the annual work plan on comprehensive governance, which formed the basis for guidance, supervision and promotion of the implementation of various comprehensive governance initiatives in due course.

2.2 Strengthening promotion and education to enhance comprehensive governance and safety awareness

With the aim of further developing comprehensive governance and safety management, the Company targeted the weakest links in management, key departments and entry-exit management of personnel and items. It stays committed to the guiding concepts of "person-in-charge shall be responsible" in comprehensive governance, adheres to the operating principles of "local management, integration of vertical and horizontal administration with a focus on horizontal authority", and upholds the operating principles of "stratified management, differentiated responsibility, integration of vertical and horizontal administration, combination of point and plane, joint efforts of upper and lower levels, full team participation". It pushed forward the education on public order and comprehensive governance, which mainly focused on the Fire Safety Law, National Security Law, Regulation on Internal Security and Safeguard for Enterprises and Public Institutions, Order 93 of the Security Bureau, relevant requirements of CRRC and other laws and regulations. The Company ensured safety and stability within the organization by enhancing staff's legal awareness about comprehensive governance.

- (1) Strengthen publicity and education to raise sense of responsibility. Paying close attention to the leading party members, persons in charge, responsible persons and "critical minority" and guided by the "Two Studies, One Action" activity, the Company continuously facilitated normalization of comprehensive governance and safety management and enhanced institutional establishment. Through various channels, such as company website, WeChat platform, and promotional banners, the Company published over 10 documents on comprehensive governance and safety management, and strengthened the comprehensive governance and safety awareness and responsibility awareness of management members, professional managers (person in charge), comprehensive governance and safety managers and staff, which established a solid ideological foundation for facilitating and implementing construction work.
- (2) By enhancing management with inspection, the Company continuously laid a solid foundation for development. In view of the actual situation that the Company operates in various places, the Company placed the focus on constructing off-site comprehensive governance system and adopted joint and cross examination to ensure comprehensive governance safety at other units and construction sites, enabling a well-ordered coordinated mechanism of the multilevel comprehensive governance management system and optimized management and control system. The Company carried out 10 safety inspections on production safety, comprehensive governance safety, fire safety, national safety, traffic safety and emergency response, with 152 safety risks detected and the correction rate was 97.5%.

PART III ENVIRONMENTAL PROTECTION

- (3) The Company addressed the weakness of the management and promoted national security and civil defense. With the guidance of superior management and local authorities, the Company's overseas subordinate units have established national security and civil defense organization with specified job responsibilities and regular operation mechanism such as "Monthly Report". In line with the work of local national safety authority, the Company conducted investigations on overseas staff and special projects such as the research on the internationalization of concentric diversification technology, in order to provide reference and gain experience for promoting and optimizing multilevel national safety management system.
- (4) The Company strengthened the supervision and assessment on property safety management personnel and increased the accident prevention ability of the safety management team. Through different platforms and measures such as internal training and outsourced training, the Company focused on security prevention and strengthened trainings on the ability of security personnel. Meanwhile, the Company strictly performed assessment and evaluation on their daily work. During the year, it issued 12 assessment reports which raised 67 unqualified items and implemented reward and punishment system to supervise daily safety management work, so as to implement comprehensive safety management.

2.3 Increase investment in protection and self-defense ability

- (1) By actively participating in comprehensive governance, pre-evaluation of fire safety and inspection and acceptance of the new renovation and construction projects and emphasizing "three simultaneous" requirement, the Company facilitated the comprehensive governance in construction projects and fundamental fire safety. It participated in more than 10 investment and construction projects, including construction projects and fire improvement projects.
- (2) The Company invested more than RMB1 million in security technology such as digital upgrade of video surveillance systems, Smart Zhuzhou, fire extinguisher equipment, automatic fire alarm system and access control. Currently, focusing on "Major Hazardous Areas" and "Parameter Safety Management", the Company put effort in full coverage of security technology with HD video surveillance systems, electric fence and infrared radiation.
- (3) Stepping up environmental governance, the Company arranged and supervised the phase out of 8 yellow label vehicles and the subsidy scheme according to the "Notice on Accelerating the Phase out of Yellow Label Vehicles and Scrap Vehicles" published by the provincial and municipal authorities. Meanwhile, the staff shuttle bus service providers were required to follow the requirements, which eliminated the operation of unqualified vehicles. There was no road traffic accident during the year.

PART III ENVIRONMENTAL PROTECTION

2.4 Strengthen emergency response plan and build a “Prevention Wall”

Placing emphasis on improving and optimizing the administrative measures for the emergency response, emergency response team, emergency response supplies and equipment and focusing on “early detection, quick response and completed action”, the Company continued to increase the input of manpower, resources and financial investment, so as to continuously improve the emergency response management system and ability.

- (1) The Company formulated special plans such as the “Anti-terrorism Special Plan”, and arranged dedicated security personnel of the Company to undergo simulation drills on emergency response management, regional security emergency handling and counter-terrorism, aiming at optimizing refined management on emergency response plan and ensuring enhancement and implementation of emergency response system.
- (2) The Company continuously strengthened supervision, guidance, and assessment on security personnel and emergency response team with an aim of “enhancing ability of individuals”, and assisted Times Property in revising “Training Agenda” to increase the effort in learning and training. The Company also further strengthened the safety awareness, responsibility awareness, devotion awareness and emergency awareness of the security and emergency response personnel, so as to continuously enhance and ensure the Company’s capability and management level to handle emergency situations. During the year, the Company organized 6 drills for emergency personnel and fire-fighting rescue drills.
- (3) With the current division of safety zone, the Company established a region-based coordinated emergency management system which covered every service point, meanwhile it acquired practical equipment such as law enforcement recorders, baton and patrol light. It strengthened sense of security of individual employee and enhanced their confident in safety management, which ensured the internal safety and stability of the Company.

2.5 Special Projects

(1) Comprehensive Governance — establishment of safe workplace and enterprise

Pursuant to the annual work plan on major tasks, while continued to optimize “Security Plan for Major Activities”, the Company promoted the establishment of work plan for special projects, such as implementing anti-terrorism measures and emergency response plan, and carried out drills timely. The plans are tested for its scientificity, reasonableness and practicality through drills.

Meanwhile, based on the request from superior, seasonal characteristics and major festivals or reception day, the Company organized special comprehensive governance management projects, such as “Winter Fire Safety Training”, “Qingming Festival Fire Safety Training”, “Anti-terrorism”, “Safe Chinese New Year”, “Annual Anniversary” and “6.02”.

The Company performed over 480 receptions throughout the year, including 151 A-level receptions and 78 receptions for foreigners and ensured the safety during the stay at the Company.

PART III ENVIRONMENTAL PROTECTION

(2) Fire safety — optimizing establishment of fire safety management system

In view of the actual situation, the Company continued to improve and reinforce the establishment of the multi-level fire safety responsibility system. Meanwhile, adhering to the guiding ideology of “prevention-based establishment”, the Company conducted in-depth fire safety work centering on “inspecting and rectifying hidden fire hazards, putting out fire at the start, directing staff evacuation, promoting fire safety knowledge education and training”. Leveraging the establishment of “Mini Fire Station”, the Company enhanced its fire safety ability, reinforced existing fire safety hardware such as the fire-fighting facilities and equipment, fire extinguisher equipment and emergency lighting. Based on the “Fire Regulation on Construction Design (2014 version)”, the “fundamental safety” of renovated building which underwent various renovation and expansion construction met the national and industry standard and front-loaded fire safety management was implemented. The Company also enhanced its firefighting capabilities by organizing drills to ensure safety. According to the annual plan, with the focus on fulfilling requirements of “safe production”, “national safety”, “anti-terrorism” and “fire safety month”, the Company carried out 12 drills on firefighting, evacuation, rescue, escape and the use of equipment and gradually enhanced its self-defense ability. The Company acquired 1,270 emergency lights, safety exit signs, indicator lamps for emergency evacuation and gas masks, replaced 40 aging and worn-out fire hoses (excluding subsidiaries) and constructed 8 fire stations and 20 safety control rooms. There was no Class I fire or above.

(3) Road Safety-strengthening awareness on traffic regulation, enhancing enforceability, securing road safety

In view of the actual conditions such as traffic jam in our proximity, frequent accidents and large amount of vehicles owned by the staff of the Company, in order to ensure road safety, with the approval of the senior management and strong support and guidance from local authorities, the Company established a traffic control support team consisting of 8 team members with strong sense of responsibility and high capability after deliberate selection, training and education to solve the traffic jam and dangers for the Company and mitigate the shortage of manpower for the local transportation department, so as to ensure traffic safety.

The Company continued to strengthen staff shuttle bus management and strictly implemented qualification management. It selected qualified shuttle bus service providers to provide staff shuttle bus management service and averted risk of management responsibility. Meanwhile, the Company insisted to carry out inspection on the bus at least once every month so that dysfunctional buses were not put on the road and the quality and safety of the shuttle buses was ensured. This prevented any major accidents resulted from traffic accidents. Meanwhile, based on employees’ needs, the Company adjusted the routes timely to ensure the safety of the staff on the way to work and home. During the year, the shuttle bus operated 12,457 times on 29 routes, serving 568,870 passengers without causing any incidents.

PART III ENVIRONMENTAL PROTECTION

(4) Placing emphasis on safeguarding the 19th National Congress

In order to safeguard the 19th National Congress and avoid any accidents and incidents, the Comprehensive Administration Office of the Company promptly prepared various documents and implemented the spirit of the congress in accordance with the direction of the superiors and the requirements of the Company's leadership members, and organized a meeting in relation to the special work of safeguarding the 19th National Congress. All units were required to take the preparation and implementation as current important political tasks, select responsible persons, formulate work plans, specify work tasks, focus on the key aspects and optimize the contingency plans. Meanwhile, the Company strengthened communication with local departments and continued to promote the construction and sharing of "information platform" to keep abreast of the latest work instructions and requirements, so as to ensure safety and reliability of the Company and prepared for 19th National Congress.

(5) Establishing and promoting mechanism steadily

In order to ensure safety, stability and controllability within the organization, the Security Management Department (Administrative Supporting Department) of the Company changed the working methods with quick reaction and flexibility. In accordance with the requirements of superior and local governments, it integrated actual conditions and requirements such as time, geographical and natures on top of the annual work plan mechanism to enhance and optimize the comprehensive governance management system such as internal safety management, organization's work mechanism, rules and regulations and security technology facilities of the Company with the establishment of special work mechanism.

PART IV CARE FOR STAFF

I. OUR STAFF

Employee team is the most valuable assets of the Company and the foundation for corporate development. The Company will employ staff in strict compliance with the laws and will never harm their interests. By closely monitoring the interest of the staff and creating a good environment, the Company contributes to self-achievements and well development of the staff.

As at 31 December 2017, the Company has executed labor contracts with 7,751 employees in total.

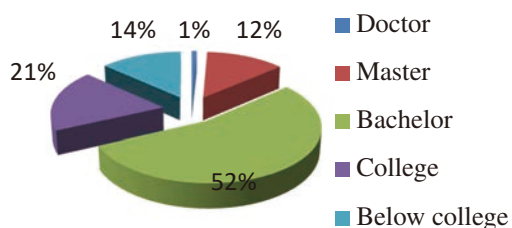
1. Employment Diversity

1.1 Current Employment Overview

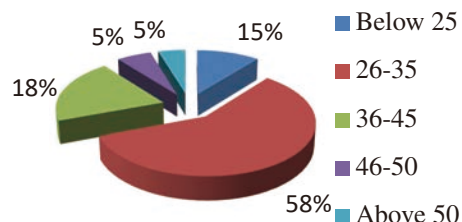
The Company continues to strengthen the optimization and management of human resources and strives to establish a dynamic and competent team with high academic qualifications, young age, advanced techniques and strong professional skills. Currently, the Company has recruited a number of talents possessing core expertise, high-end technique as well as operation and management skills of the industry, which has laid a solid foundation for the Company's sustainable development.

The Company has a relatively stable workforce. Over the last three years, the employee turnover rate was maintained at below 5%, and was only 2.8% in 2017.

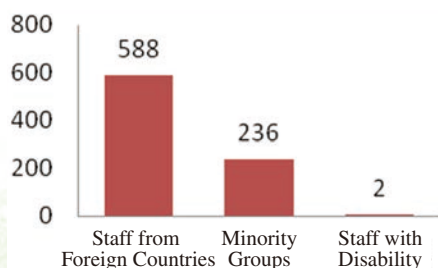
Breakdown of Education Level



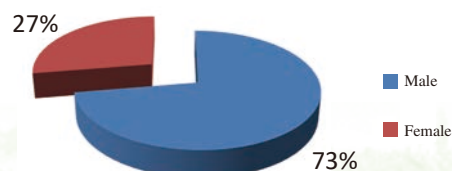
Age Composition



Number of Staff from Foreign Countries, Minority Groups or with Disability



Gender Composition

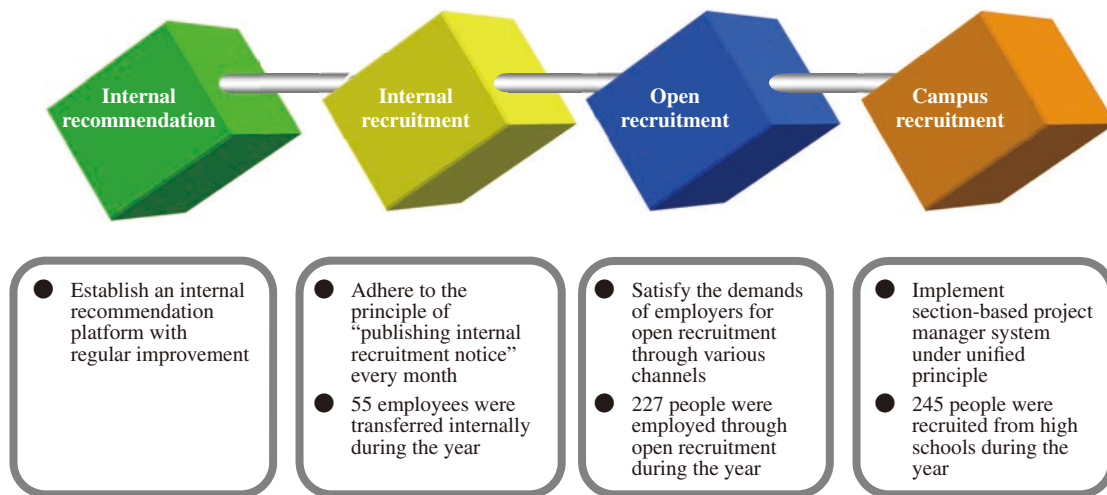


PART IV CARE FOR STAFF

1.2 Staff Recruitment

The Company maintained a sound staff recruitment process in accordance with the requirements under the Labor Law, the Employment Contract Law, the Law on the Protection of Minors, the Law on Protection of Rights and Interests of Women and the relevant laws and regulations, and strictly carried out reviews on the basic information of job applicants. The Company forbade the employment of child labor and forced labor, and adhered to the principle of equality between men and women. The Company does not discriminate against staff on nationality, race, age, gender and marital status.

The Company has established various recruitment channels based on different needs of talents for various positions, including internal recommendation, internal recruitment, open recruitment and campus recruitment. It also introduced innovative measures to conduct recruitment of talents in various aspects such as railway signaling, rail transport digitalization and intelligence, electric motor system for passenger trains, deep water equipment and environmental protection and overseas talents, which will provide the Company with talents supporting its major industrial development.



2. Staff Salary and Benefits

The Company provides remuneration and benefits in accordance with the requirements under national laws and regulations and relevant policies, maintains a comprehensive remuneration and welfare management system, and adheres to the principle of equal pay for equal work and legal remuneration.

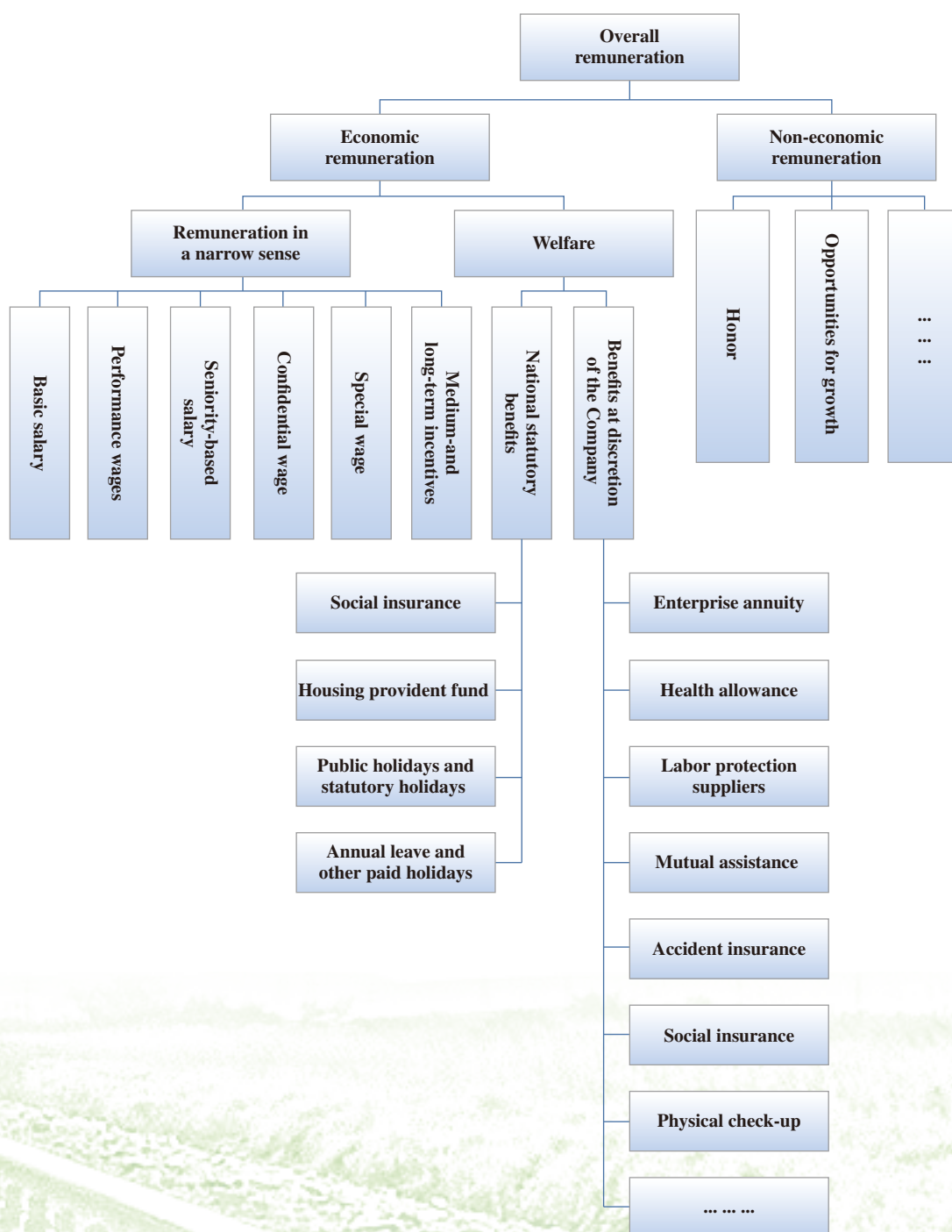
The Company adheres to the principle that puts efficiency as top priority while giving consideration to fairness and equality, and establishes a salary system which links salary with position, capability and performance.

In accordance with the requirements of national laws, regulations and related policies, the Company provides and maintains statutory benefits for its staff, including basic pension insurance, basic medical insurance (including medical insurance for serious illnesses), work injury insurance, maternity insurance, unemployment insurance and housing provident fund, etc. It also provides the staff with various benefits at discretion of the Company, including corporate annuities, supplemental medical insurance, lunch subsidies, health allowance, labor protection supplies, physical check-up, recuperation, transportation and communication subsidies, mutual assistance, accident insurance for family planning, etc.

PART IV CARE FOR STAFF

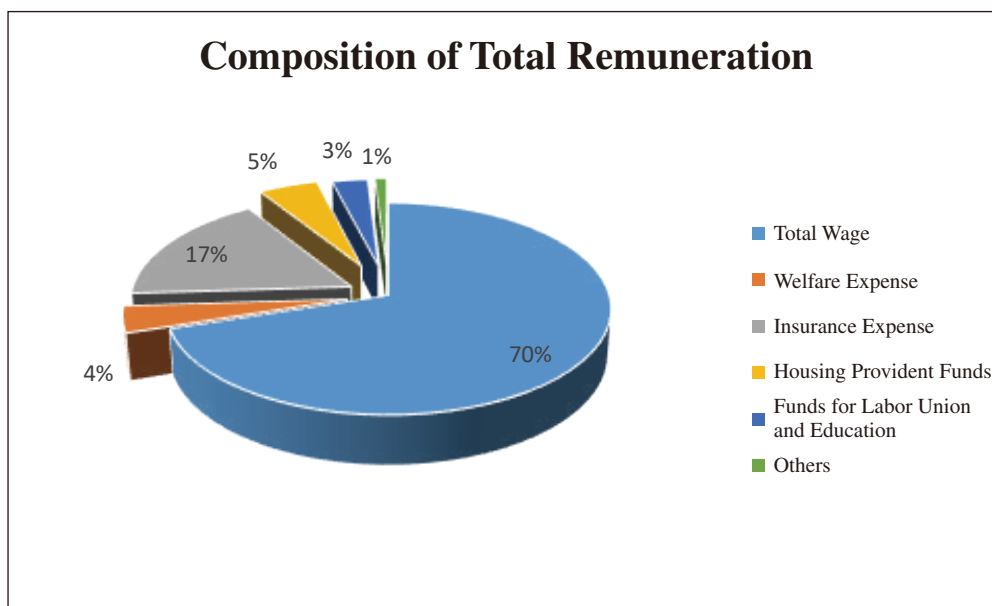
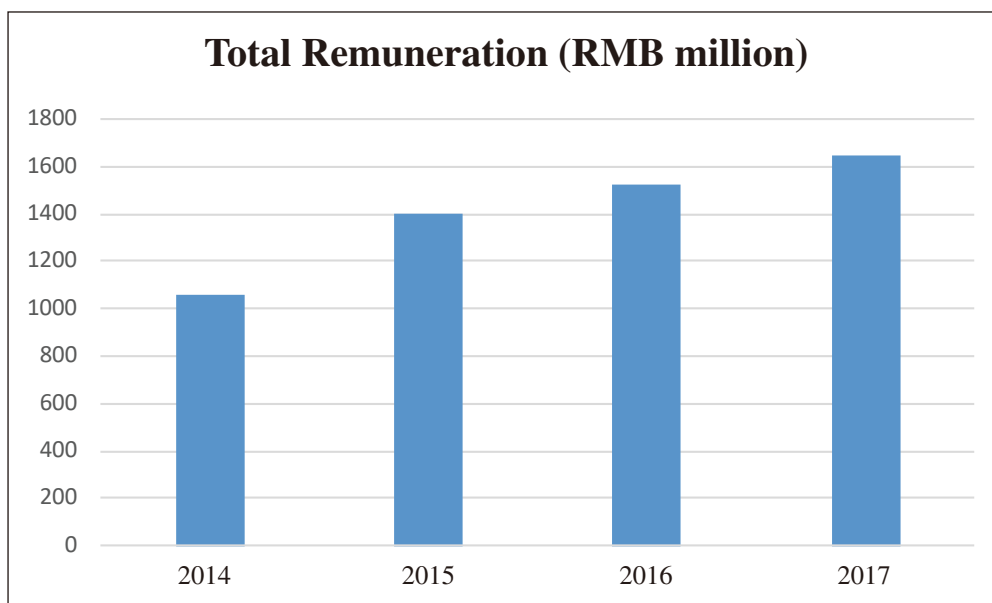
Staff is entitled to day-off on public holidays, wedding leave, funeral leave and maternity leave. In addition, they are entitled to annual leave according to national Regulations on Paid Annual Leave and Implementation Measures for Paid Annual Leave for Corporate Employees.

The Company promotes the concept of overall remuneration. It has extended the concept of remuneration to include welfare and other non-economic rewards such as honors, career development, etc. Accordingly, the staff can have a comprehensive understanding of the returns given by the Company, which enhances the incentive provided to them in the form of remuneration.



PART IV CARE FOR STAFF

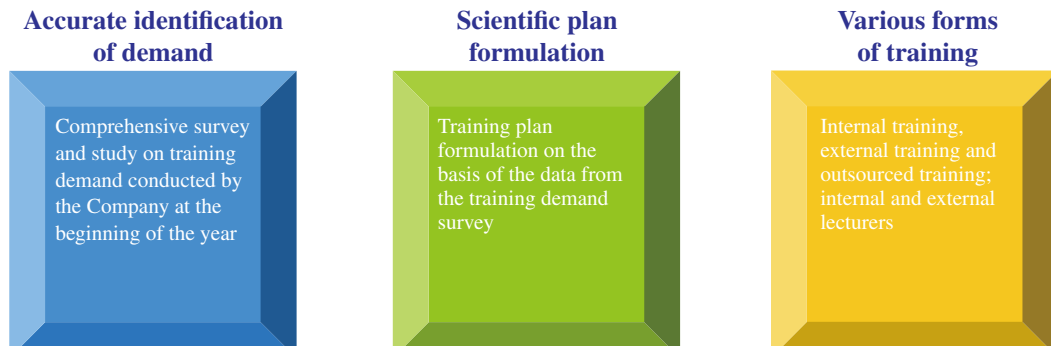
Growth and Composition of Total Remuneration (Wages and Surcharge) in 2017



PART IV CARE FOR STAFF

II. TRAINING AND DEVELOPMENT

1. Staff Training and Management



Based on the extensive training demand survey and study alongside with the analysis on various training needs of strategic development and department operations and employee's career development, the Human Resources Department of the Company actively allocates its resources and arranges training at different levels, in different forms and on different aspects by engaging internal and external lecturers.

The Human Resources Department persists in revising and updating training management and system development, and eliminating obsolete ones by enlarging efforts on monitoring and best practice benchmarking to ensure implementation of training projects at organizational level. Moreover, the Company encourages independent design based on three levels of learning, namely position, competence and career development and integrates resources of internal and external programs in order to help enhance motivation, ability and perseverance of its staff with objectives and directions.

In 2017, the Company introduced innovative training models, which facilitated sharing with smart appliance and established learning system with E style. The Company initiated the construction project of "smart" learning platform to establish information-based training platform and completed testing. By constructing the information-based learning management platform, the Company promoted online self-learning, integrated online and offline learning experience, interactive learning and learning incentive, learning management informatization and training resources sharing etc.

Internal trainers are the teachers of corporate knowledge and skills, who play a critical role in talent cultivation. The Company attaches great importance to cultivation of internal trainers and has established a matured team of internal trainers comprising a total of 543 trainers classified into two levels (company level and business unit level). In particular, the Company has 22 five-star internal trainers, 94 four-star internal trainers and 162 three-star internal trainers. In addition, the Company also has 5 CRRC senior trainers. To facilitate sharing of internal experience and knowledge transfer, the Human Resources Department further promoted the platforms of "Happy Classroom" and "Expert Forum" to carry out internal training. Many of the staff members actively shared their experience and achievement on stage, which formed a "sharing and interactive environment". In 2017, based on the previous experience, the internal training of the Company shifted from various separated programs to series of quality programs. The Company launched 26 programs under 4 series, namely lean research and development, lean production, safe product development and audio training for internal trainers. Meanwhile, the Company launched quality programs such as emotion management and workplace PPT for each unit. Founded in 2013, "Happy Classroom" and "Expert Forum" have established a good brand image of internal training among employees, with over 90 training programs and over 6,000 attendees, which provided ample opportunities for the employees to learn from experiences.

PART IV CARE FOR STAFF

In 2017, the Company's total investment in training was approximately RMB12.64 million. The training time per capita was 48.5 hours and 2,259 training projects were completed. The implementation rate of the Company's annual training plan was 94.1%.

[Case sharing]

The Company established a core talent team to support its strategy. It planned and organized various training programs such as "Training for New Professional Manager", "Training for Talent Pool", "Overseas Manager Training Program", "Advance Class of Technology Management Training Group", "Special Training for Marketing and Sales Officer", "Internal Trainer Series Training".

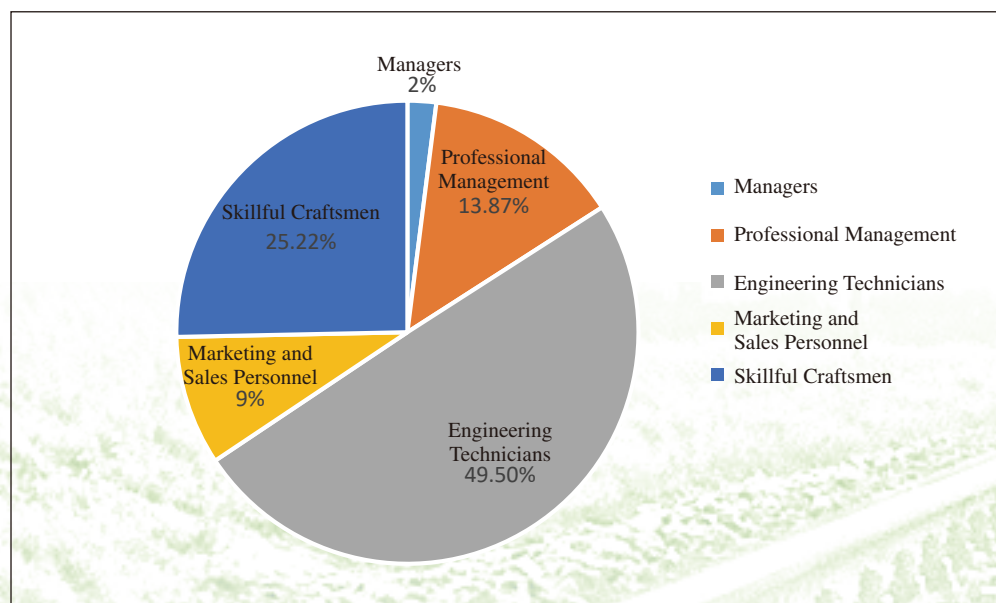
The Company actively arranged relevant staff to participate in various special training programs organized by CRRC and CRRC ZELRI, including "Formosa Plastic Training for Core Management Talents of CRRC", "Training for Core Technical Talents (Germany)", "Training for Core Management Talents (Korea)", "International Talents 631 Project", "Ability and Quality Training for Job Foremen", "Training for Internationalization of Professional Management Personnel in Human Resources, Planning, Operation, Audit and Project Management", etc.

2. Staff's Career Development

The Company has developed a career development bridge system with 5 career development paths for managers, engineering technicians, professional management, marketing and sales personnel and skillful craftsmen. Every staff may realize his/her own career development through the planned career path of the job he/she engages. Currently, staff above C-level accounted for 33.16% of total number of staff.

Currently, the Company has a team of experts possessing core expertise of the industry, operation and management talents as well as core technological talents. The team includes 6 "chief technological experts", 19 "senior technological experts", 62 "technological experts", 5 "senior management experts", 24 "management experts", 1 "senior skillful expert" and 7 "skillful experts" of CRRC.

Composition of career development paths:



Note: The scope of statistics does not include DYNEX and SMD.

PART IV CARE FOR STAFF

III. HEALTH AND SAFETY

1. Safety Objective and Target Management

The Company adheres to the occupational health and safety guidelines of “people-oriented, continuous improvement, environmental friendliness, and health and safety”. According to the safety management principles of “Responsibilities between the Party and Government, One Position with Dual Responsibility and Person in Charge Shall be Responsible”, the Company has formulated, developed, established and published the annual implementation plan of major safety management tasks. It strictly implements accountability system for safe production. The Responsibility Commitments on Management of Safety Objectives are signed by all units to specify the safety responsibilities and break down the safety targets. The Company organized regular quarterly safety committee meeting to resolve any safety issues in a coordinated manner. In 2017, the Company was not liable to accidental casualty, there were also no new case of occupational disease, Class I fire and explosion accident, other accidents with material effects and accidents that caused minor injuries. Hence, it has achieved its annual safety targets. In 2017, the Company was awarded the titles of “Advanced Unit for Safe Production” and “Advanced Unit for Prevention of Occupational Diseases” in Zhuzhou City.

2. Update and upgrade of occupational health and safety management system and environmental management system

In 2017, through the acquisition/identification/compliance appraisal/promotion of laws and regulations concerning occupational health and safety, identification/evaluation and control of risk factors, revision and promotion, internal audit and review of 28 EHS system documents, the Company successfully obtained certification of the revised and upgraded ISO 14001:2015 standards for the EHS system.

3. Boosting employees' safety awareness and skills on all fronts

In 2017, the Company further enhanced various educational and training programs concerning safety and environmental protection and organized diversified educational and training activities through various ways such as “Attracting Talents and Going Global”. In 2017, business units also carried out various safety training. According to the statistics, the Company conducted safety trainings for 14,016 participants in 2017.

Summary of safety and environmental protection training in 2017

No.	Type of Training	Number of employees trained	No.	Type of Training	Number of employees trained
1	Training for middle management and above	162	13	Electrical safety training	70
2	EHS training for primary officer in charge and management	22	14	Occupational health training	712
3	Training for safety management personnel	123	15	Training on special operation (operating special equipment) (new)	377
4	Training on revised core EHS standards	18	16	Training on special operation (operating special equipment) (review)	310
5	Safety training for team foremen	160	17	Job-rotation training	99
6	Training on revised ISO14001 standards for internal auditors	42	18	Training for returning employees	1
7	Training on OHSAS18001 standards	19	19	Training on new techniques, new technology, new materials and new equipment	478
8	Training on DuPont Safety leadership	7	20	Training for all staff	8,903
9	Professional expertise training on DuPont Safety	10	21	Other trainings	1,490
10	Three-level safety education for new employees	853	22	Training on environmental protection	26
11	Training for operators of special equipment	103	23	Total	14,016
12	Safety training on dangerous chemicals	31			

PART IV CARE FOR STAFF

In 2017, the Company organized various safety education and promotional activities, for example, the Manufacturing Centre held the first safety culture and art festival and organized speech and essay writing competition centring on safety, sharing session on safety story. Various departments recommended 10 stories about safety and 10 excellent essays. There were 12 teams from 18 departments joining the safety competition and 1,600 employees participating in Safety Quiz. Through these exciting activities, the safety awareness of the employees was advanced as a whole and a safe working environment was created.



Safety culture and art festivals

4. Organizing safety themed activities to build safety culture

In 2017, the Company organized 7 safety themed monthly activities that targeted key safety management personnel and equipment. The launch of activities enhanced the safety capabilities of employees at all levels, delivered professional safety knowledge and raised their safety awareness.

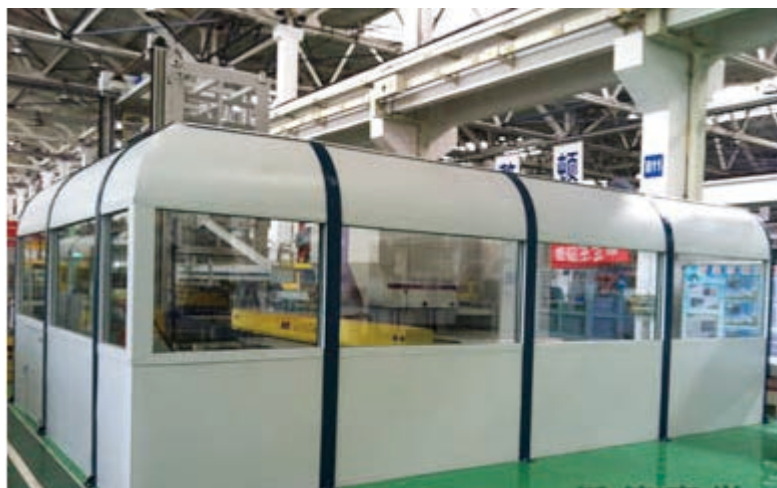
5. Focusing on investment in ongoing improvement of working environment

Upholding the people-oriented safety management principle, the Company attaches importance to safety investment. In 2017, the Company invested RMB26.4588 million to enhance onsite safety, improve the working environment and provide employees with labor protection equipment.

PART IV CARE FOR STAFF



Tested the windows at the testing center and installed negative-pressure air fan and water-cooled air conditioning to improve the environment for hot work



New noise reduction devices for the railway platform at the testing center



Improved working environment of wave soldering inspection and maintenance at the Manufacturing Centre



Improve the conditions of work at height at the Manufacturing Centre (installed steel wire rope for safety belt)

PART IV CARE FOR STAFF

6. Enhancing investigation of hidden risks to strengthen site safety management and control capability

The Company has established a comprehensive inspection mechanism to reveal hidden risk, safety check is regularly conducted at the company-level, business section level and team-level respectively at least once a month, once a week and every day. During the year, 17 safety checks were conducted at the company-level and 274 hidden risks were identified. In respect of the safety checks at the business section level and team-level, there were 1,623 hidden risks identified. Following the five principles of “establishing rectification measures, assigning person in charge, determining investment amount, defining rectification period, formulated emergency contingency plan”, potential accidents and risks were eliminated in a timely manner.

7. Dedicated efforts in workplace hygiene and safeguarding occupational health

The Company adheres to the people-oriented principle and actively organizes occupational health check-ups, so as to protect both physical and mental health of staff working at locations exposed to occupational hazards. In 2017, the Company organized health check-ups for 477 in-service staff working at locations exposed to occupational hazards, pre-employment check-ups for 58 staff proposed to work at locations exposed to occupational hazards and post-employment check-ups for 93 staff working at locations exposed to occupational hazards, and changed the job duties of 1 staff who was not fit for the position. The Company also jointly organized onsite monitoring for operation premises exposed to occupational hazards with Zhuzhou City Occupational Diseases Prevention and Control Centre. During which, 84 out of 89 check points were in compliance with the required standard, representing a compliance rate of 94.38%. The efforts in employees' health and operation environment enabled the Company to obtain the latest information on occupational health in a timely manner and prevent occupational diseases.

IV. INTERESTS OF STAFF

1. Implementing system of Workers' Congress to safeguard employees' interests

As the basic form of practicing democratic management by enterprises, the Workers' Congress is an organization body for workers to exercise the power of democratic management in accordance with the provisions of laws. Based on the principle of democratic centralism, the Company established its Workers' Congress system in accordance with relevant requirements under the Trade Union Law.

The Council of Labor Union is the operating authority of the Workers' Congress and it is responsible for the daily work of the Workers' Congress. It has 155 existing staff representatives elected democratically from cadres (staff) in various departments (units), involving personnel from various fields of the Company, such as management, technology, production and marketing. The Workers' Congress system has strengthened the Company's democratic management effectively, guaranteed the rights of staff to exercise democratic management according to the law, fully utilized staff's motivation and creativity, therefore effectively enhanced our enterprise quality and economic benefits.

Over 70 suggestions received at the 2017 Workers' Congress were sorted and processed, which involved corporate culture, employee remuneration, employee incentives, quality and cost, management innovation and industry development.

The Company has also arranged staff representatives to collect opinions and provide feedbacks on more than 10 management documents including the Administrative Measures for Quality and Performance.

PART IV CARE FOR STAFF

2. Reasonable suggestion and feedback mechanism for staff

- (1) In order to continuously increase its competitiveness and establish a harmonious labor relationship, the Company actively expanded the democratic channel with the views to motive staff's incentives and creativity as well as effectively exploit potential resources. In 2017, the Company accepted over 4,627 reasonable suggestions from its staff. The acceptance rate of reasonable suggestions from its staff was 100%.
- (2) Set up "Leadership Reception Day" system. The Company's leaders met with fundamental staff regularly every week, listened to their suggestions in person, and offered replies and solutions on the spot.
- (3) Set up online staff hotlines. The Company's general manager and secretary of the Party committee listened to staff's suggestions and opinions on their concerned issues through online communication in Youth Forum.
- (4) Set up contact sites for public opinions to serve fundamental staff, with branch presidents as the liaison officers of the units for public opinions. The Company also established fundamental labor union that covered all systems of the Company with targeted communication and liaison stations for the fundamental staff and other employees, so as to gain an in-depth understanding of the staff's concerns and requests.
- (5) The Company implemented a point-based award management system by establishing a point-based award platform, where fundamental staff are awarded for reasonable suggestions, so as to encourage them to actively participate in management innovation and improvement of production quality of the Company. In 2017, the Company received a total of 15,471 improvement suggestions.
- (6) In 2017, the Company further promoted the contact point system of the management members, who carried out the management work along with integration of required content and optional content, with an aim to understand the situation, provide guidance and solution at the lower level.

3. Caring for employees' mental health development through employee assistance program (EAP)

Various activities are organized to cater for individual needs of the employees. We organized "I have a date with the soul" for the after-sales service team and "Train to Happiness" for employees at the basic level. Through the activities, we provided psychological assessment and psychological counselling for employees.

4. Protecting staff's interests and emphasizing on caring of employees

In January 2017, the Company distributed ex gratia payment of over RMB323,000 to more than 600 employees in seven categories. The unions at all levels adopted a pragmatic approach to advance and develop new activities for more effective poverty alleviation. Du Jinsong, the party secretary of the Company, Tan Yongneng, the chairman of the trade union, and other members went to overseas subsidiaries and after-sales services outlets to visit on-site staff.

In June 2017, Hunan has experienced rainstorms. The trade union of the Company timely assisted affected employees and helped them to apply for ex gratia payment. Meanwhile, the chairman of the trade union of the affected units organized seminars to comfort the employees and expressed sympathy on behalf of the Company.

PART IV CARE FOR STAFF

In July 2017, the trade union of the Company rolled out the cooling campaign to distribute cooling aids amounting to more than RMB820,000 to approximately 4,000 field staffs, and set up cooling facilities which costed RMB120,000.

Physical examination and healthcare: The Company collected opinions from more than 90 employees on employee medical care and completed 4 phases of advanced healthcare. During the year, it optimized physical examination scheme and requested the hospitals to offer higher quality services. In order to boost the participation rate of the employees and reduce waiting time, we piloted at after-sales service, railways and urban rail transits to offer physical examination in groups. The Company arranged health checks for over 2,800 employees who aged over 45 and female employees aged below 35, and 946 married female employees.

Paying attention to the working environment of the employees, the Company replaced laptop stands for 3,864 employees in the second half of 2017 and manifested the concept of healthy working.

5. Organizing diverse activities for staff's physical and mental harmony

From the establishment of the micro-community in 2013 to the establishment of the Women's Weekend School in 2017, the trade union of the Company has always been dedicated to caring for female employees. The series of activities organized by the community of female employees enriched their after-work personal life and helped them alleviate stress from work. It also provided an exchange platform for employees to share hobbies and facilitated the harmony and communication between the employees. The activities include the followings:

In March, we held the opening ceremony of the "Women's Weekend School", which invited female employees to pair up and give performance.

In June, we organized the "June 1- My Era" family oriented DIY event to visit the Train World.

In August, more than 50 family members of our employees and 10 campus journalists participated in the third thank you trip of "Power of Science and Technology, Bliss of CRRC" for families, where they joined class and carried out experiments on magnetic levitation, painted magnetically levitated train, experienced the magic of technology through VR. These activities enabled the employees and their families to understand and take pride of the new products and new technologies of the Company, which promoted family harmony and increased their motivation for work.



CRRC Science and Technology Tour

PART IV CARE FOR STAFF

From April to September, the reading club “Happy Mind, Happy Act” organized book sharing activity which received 11 essays, 29 letters and 13 paintings. The Company’s professional managers, communist youth league and team shortlisted for the first round were invited to showcase their achievements in the reading activity. The Company also arranged the female employees to participate in the third Zhuzhou CRRC book reading session for female employees. The reading club “Happy Mind, Happy Act” was awarded the best reading club of CRRC, with 13 award-winning paintings. 2 employees were honored as the most beautiful female employees in the “Kind-hearted” category and 11 photograph works were awarded prizes.

In September, more than 60 female workers from nine branches of the “Dab Hands, Kind hearts” organized paper-rolling art activity “Show Your Talent, Give Present to 19th National Congress” during their spare time.

In November, yoga enthusiasts from “Ling Yun Yoga Club” participated in the thirteenth sports day in Zhuzhou City and won the first prize.

The Company enhanced the community mechanism, enriched recreational and sports activities of employees and fostered vitality of the employees. The Company organized various internal competitions and activities such as football, basketball, badminton, volleyball, table tennis, fishing and fitness, and formed teams to compete in the Thirteenth Zhuzhou Sports Day and Zhuzhou Oceano Badminton Event. It also jointly organized table tennis event with Aviation Industry Corporation of China and badminton event with Zhuzhou Datang Power Limited. The employees’ physical and mental well-being was promoted and corporate publicity was enhanced through cultural and sports activities.



Public Sports day



Fun Sports Day

PART V SOCIAL HARMONY

I. SUPPLY CHAIN MANAGEMENT

1. Management Measures

1. Resolving “meeting the direction of the Company’s future development” as the guideline for selecting suppliers.
2. Signing annual performance agreements with key suppliers, monitoring key performance and arranging specialized supporting work.
3. Conducting regular business exchanges with key strategic suppliers quarterly to promote the improvement of both parties.
4. Dispatching quality engineers and quality inspectors for onsite supervision of companies with frequent quality problems to improve the level of quality management of suppliers.
5. Promoting e-procurement information platform and order collaboration with suppliers to improve information exchange with them and reduce transaction costs.
6. Conducting exchanges with suppliers to improve supply chain management and drive down the costs of supplies.

2. Support to Suppliers

1. Organizing annual supplier exchange and sharing conference for supplier relation management to share experience on management innovation and promote improvement of all parties.
2. Implementing hierarchical supplier management and ranking them into three groups (strategic, important and general) based on their importance. Strategic suppliers are evaluated per quarter, while important suppliers are evaluated half a year. Promoting e-procurement information platform (SRM) and order collaboration with suppliers to improve information exchange with them and reduce transaction costs.
3. Establishing a monthly information notification mechanism for key suppliers to urge them to improve the quality of management and control.
4. Conducting monthly inspection of the strategic suppliers’ and important suppliers’ technology and quality system to urge them to improve production and corporate management. Making arrangements for key suppliers to conduct investigations, research and study in outstanding domestic enterprises from time to time, reinforcing construction of supply chain.

PART V SOCIAL HARMONY

2.1 Standardized and Clearly Defined System to Enhance Strength

The Company has established and improved a systematic and strict supplier management process. The Company formulated supplier performance evaluation system and the corresponding rewards and punishments system to regulate quality problems and handling process. The Company also specified the employee management and business ethics requirements amongst others, and required the suppliers to have complete technology and quality assurance systems. The end-to-end control of the procurement and supply process has been basically achieved, covering supplier development, supplier management, procurement management, supplier performance evaluation, supplier exit and elimination and others which embody two concepts, namely the life cycle management of suppliers and the production cycle management of material. The suppliers' capacity of self-management was gradually enhanced and common improvement was promoted through setting out clear systems and requirements.

2.2 Local Purchase Brings Regional Economic Development

There are about 43 local suppliers in Zhuzhou. In respect of procurement of outsourcing parts, priority is given to local suppliers. As a percentage of total procurement amount, suppliers in Zhuzhou City accounted for more than 60% and Changzhutan Economic Zone accounted for more than 80%, which promoted employment and production capacity of outsourcing contractors. The social contributions have driven the development of the local economy. In which, the production value of major supporting suppliers exceeded RMB500 million with approximately 4,000 employees in 2017.

II. PUBLIC CHARITY

The Company knows well the importance of growing together with the community. In 2017, the Company actively launched different kinds of activities under the themes of social responsibility and dedication, including social assistance, student support and environmental practice. The Company gracefully gave back to society and actively fulfilled our social responsibility, striving to spread the concept of corporate social responsibility to every corner of the community.

1. Organizing 2017 Happy Walk & Run for Charity

To promote healthy lifestyle to young employees, so that they work with enthusiasm and actively participate in charity work, the Company initiated Happy Walk & Run for Charity. The activity comprised of two games, namely walking and running. The competition data was collected through the account of the Group in mobile AAP. The 100-day campaign offered various prizes and raised more than RMB10,000 through the donations from the participants.

2. Establishing the “Dandelion” Charitable Platform for a variety of education subsidies

In 2017, the Company organized young employees to visit Liling Nian Yu Shan Primary School and Yanling Tian Tang Village to roll out charitable education campaign for the rural children with financial difficulties and show love and care for them. Through activities such as “Speak Your Dreams” class meetings, gifts exchange, home visits, the volunteers paired up with the children of poor families. Not only did they provide the students with material supports, they also helped them with long-term mental guidance and supported their growth and success. In 2017, through the platform, we donated and built a young pioneers activity room for a primary school in Liling to care for youth growth.

PART V SOCIAL HARMONY



3. Hosting “Shade of Trees Action” for tree planting

Taking the Lei Feng Month in March as an opportunity, the young employees of the Company launched a series of activities for the “Social Responsibility and Dedication Month” throughout the Company, calling for and encouraging all the employees to be more devoted and to practice social responsibility. The community tree planting activity “Action of Shades of Trees” was launched along the bank of Xiang River in Hexi District of Zhuzhou City. A total of almost 200 employees participated in the activity and planted more than 100 trees, which added a shade of green to the city.



PART V SOCIAL HARMONY

4. Organizing Selection of “Beautiful New Youth”

The communist youth league of the Company organized the “Beautiful New Youth” event to select role model of teenagers for the new era, which were recommended by low-level department to high-level ones, reviewed by the operational committee and approved by the management. The communist youth league selected 8 role models in 4 categories, namely performance, dedication, moral and enthusiasm. Through holding award ceremony and live streaming, the stories of outstanding youth were widely spread with page view counts of over 100,000.



PART VI FUTURE OUTLOOK

In 2018, the Company will adopt open mindset, focus on strategic target, leverage the innovative platform and improve refined management to achieve major breakthroughs in terms of system, industry, technology and efficiency.

1. Adopt open mindset to facilitate breakthrough in optimizing system. The first is to consolidate its position in the railway transportation industry and further expand growing industries through industry synergy. The second is to enhance integrated strengths and actively response to external competitions by accumulating systematic competitiveness.
2. Focus on strategic target to realize multiple breakthroughs in the industry. The Company will strengthen pillar industries such as railway industry, urban railway industry and railroad industry, achieve breakthrough in growing industries such as signal & communication, semi-conductor industrial converter, electric drive system for passenger vehicles and sensors and capture potential market such as the overseas, marine engineering equipment and key components markets, so as to make multiple breakthroughs in the industry.
3. Leverage the innovative platform to accelerate breakthroughs in technology and quality. By strengthening research in fundamental capabilities, upgrading key technological level and applying stringent quality control standards, the Company will enhance the supporting capacity of the innovative platform and achieve quick breakthroughs in technology and quality.
4. Improve refined management to enhance operational efficiency. By optimizing operation management and control, improving IPD system and strengthening capacity assurance, the Company will further enhance operational efficiency.

PART VII APPENDIX

INDEX OF THE ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORTING GUIDE

Environmental, Social and Governance Reporting Guide			Subject Areas
Environmental	A1 Emissions	General disclosure: relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P44-46
		A1.1 The types of emissions and respective emissions data	P44
		A1.2 Greenhouse gas emissions in total (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P44
		A1.3 Total hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P44
		A1.4 Total non-hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	P44
		A1.5 Description of measures to mitigate emissions and results achieved	P45
		A1.6 Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved	P44-46
	A2 Use of Resources	General disclosure: Policies on the efficient use of resources, including energy, water and other raw materials	P46
		A2.1 Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility)	P46
		A2.2 Water consumption in total and intensity (e.g. per unit of production volume, per facility)	P46
		A2.3 Description of energy use efficiency initiatives and results achieved	P46-51
		A2.4 Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved	P46-51
		A2.5 Total packaging material used for finished products (in tons) and, if applicable, with reference to per unit produced	Not applicable
	A3 The Environment and Natural Resources	General disclosure: Policies on minimising the issuer's significant impact on the environment and natural resources	P46-51
		A3.1 Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	P46-51

PART VII APPENDIX

Environmental, Social and Governance Reporting Guide			Subject Areas
Social	Employment and Labour Practices		
	B1 Employment	General disclosure: relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P57-59
		B1.1 Total workforce by gender, employment type, age group and geographical region	P57
		B1.2 Employee turnover rate by gender, age group and geographical region	Undisclosed
	B2 Health and Safety	General disclosure: relating to providing a safe working environment and protecting employees from occupational hazards: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P63
		B2.1 Number and rate of work-related fatalities	P63
		B2.2 Lost days due to work injury	Undisclosed
		B2.3 Description of occupational health and safety measures adopted, how they are implemented and monitored	P64-66
	B3 Development and Training	General disclosure: Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	P61
		B3.1 The percentage of employees trained by gender and employee category (e.g. senior management, middle management)	P61-62
		B3.2 The average training hours completed per employee by gender and employee category	P61-62
	B4 Labor Standards	General disclosure: relating to preventing child and forced labour: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P58
		B4.1 Description of measures to review employment practices to avoid child and forced labour	P58
		B4.2 Description of steps taken to eliminate such practices when discovered	P58

PART VII APPENDIX

Environmental, Social and Governance Reporting Guide			Subject Areas
Social	Operating Practices		
	B5 Supply Chain Management	General disclosure: Policies on managing environmental and social risks of the supply chain	P70
		B5.1 Number of suppliers by geographical region	P71
		B5.2 Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored	P70-71
	B6 Product Responsibility	General disclosure: relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant influence on the issuer	P30-32
		B6.1 Percentage of total products sold or shipped subject to recalls for safety and health reasons	Not applicable
		B6.2 Number of products and service related complaints received and how they are dealt with	P39
		B6.3 Number of products and service related complaints received and how they are dealt with	P24-29
		B6.4 Description of quality assurance process and recall procedures	P30-37
		B6.5 Description of quality assurance process and recall procedures	Undisclosed
	B7 Anti-corruption	General disclosure: relating to bribery, extortion, fraud and money laundering: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant influence on the issuer	P18
		B7.1 Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases	P18
		B7.2 Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored	P18
	Community		
	B8 Community Investment	General disclosure: Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests	P71-73
		B8.1 Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	P71-73
		B8.2 Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	P71-73



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