



社會責任報告 2015  
CORPORATE SOCIAL  
RESPONSIBILITY REPORT

**株洲中车时代电气股份有限公司**  
ZHUSHOU CRRC TIMES ELECTRIC CO., LTD.

# Notes

On 28 March 2016, the Company announced the change of name from “Zhuzhou CSR Times Electric Co., Ltd. (株洲南車時代電氣股份有限公司)” to “Zhuzhou CRRC Times Electric Co., Ltd. (株洲中車時代電氣股份有限公司)”.

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 *Guideline on Sustainable Development Report (2006) 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 time from 1 January 2015 to 31 December 2015. The currency used herein is RMB. The report covers the Company’s headquarter and share-holding subsidiaries but not including joint stock companies, using the same scope, boundary and calculation methods as the previous reports.

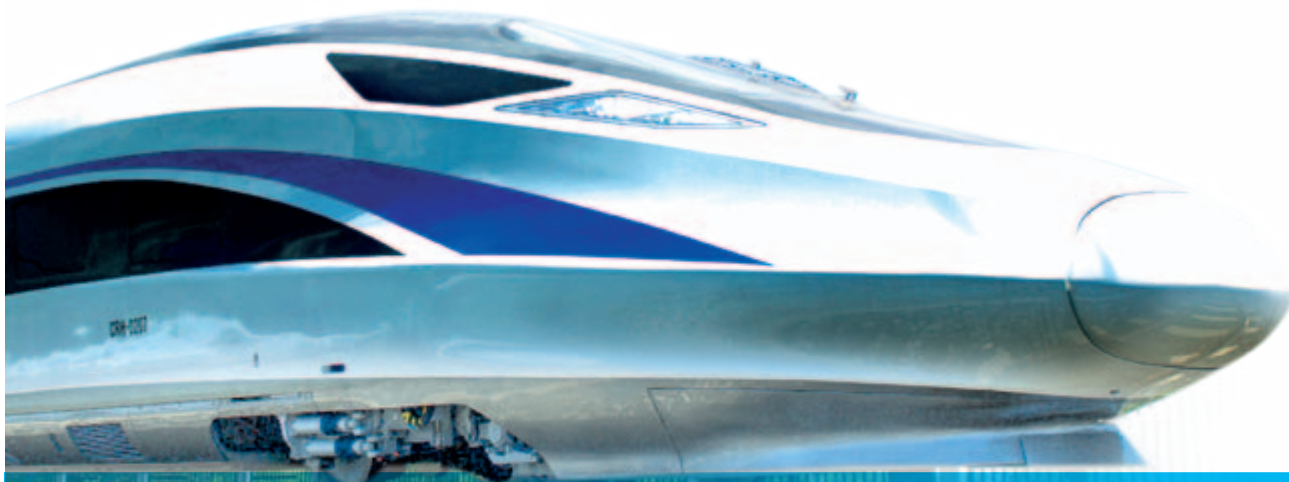
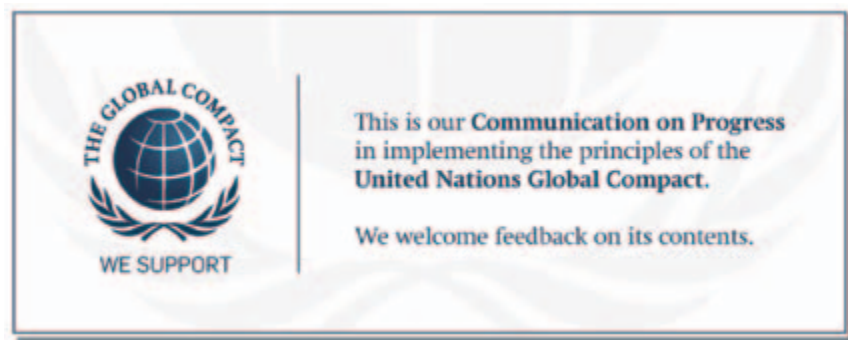
This report is a faithful reflection of the Company’s active fulfillment of its economic, environmental and social responsibilities and its full implementation of the sustainable development strategy. It is a report of full disclosure of the Company’s management performance related to stakeholders’ concerns and expectations. All the information and data therein 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 differences between the two versions, the Chinese version shall prevail.

Headquarter Address: Shidai Road, Zhuzhou City, Hunan Province, China.

Electronic Version Available at: [www.timeselectric.cn](http://www.timeselectric.cn)



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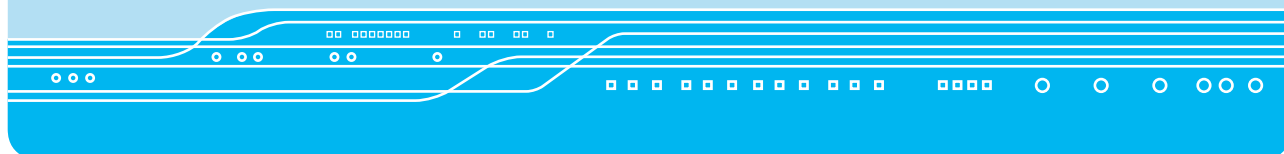
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# Speech by the General Manager

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## Responsibilities and achievements

During the fifth plenary session of the 18th CPC Central Committee, China's development goals for the "13th Five-year" period were set up along with its development philosophy of innovation, coordination, green, openness and sharing. The "tri-networks integration" of trunk railway, intercity rail and urban transit will bring us new growth opportunities. Globally, "One Belt One Road" Initiative has built us a clear strategic map and the "high-speed rail diplomacy" has created premium business conditions for us, which facilitated an overwhelming "Go Global" strategy for the high-end equipment industry. Meanwhile, with the support of CRRC Group and taking full benefit from the enormous advantage of CRRC brand, we strive to develop CRRC Times Electric as the world's major and leading multinational company as well as the "preferred supplier of complete solution for rolling stock electrical system in the world".



With regard to the Company's development history, 2015 was not only a year of cultivation and harvest, but also a year of hopes. The Company operated in the rail transit concentric diversification industry to focus on the core values and synergies, which contributed to a steady growth of the Company's results and operating capacity and laid a solid foundation for the exploration of new developments under the "13th Five-year" plan and the realization of sustainable operation.

Looking ahead, the Company sees various challenges and trials on way of sustaining the steady growth momentum, including the integration of and adjustment to the industry landscape and strategic positioning subsequent to the merger of CSR Corporation Limited and CNR Corporation Limited. In particular, since the Company, as an international operating platform, expanded into a business scale and achieved result of over RMB10 billion, the demand from the users will be higher and stricter and the tasks of the Company's management will become more sophisticated. Accordingly, it will be far more difficult than ever for us to operate the business more prudently and effectively.

The Company will also continue to integrate social responsibility into its corporate development strategy and operational management. The Company will strictly adhere to the social responsibility philosophy of "Responsibility, Hand in Hand with Speed". While pursuing economic efficiency and protecting the interests of shareholders, the Company is also keen on protecting the legitimate rights of employees, and treating users and suppliers with integrity. It will continuously enhance the capability of independent innovation, strive to build its own brand and provide comfortable, safe and reliable green products to the society. It will strengthen resource conservation and environmental protection, actively participate in social charities, and promote the integrated and harmonious development of the Company with the society.



## Speech by the General Manager

01

We recognize that the sole pursuit of self-interest maximization would not last long, and a corporate can be permanent only if it sticks to the principle of sustainable development. There is endless and no shortcut to success on the pursuit of sustainable development. Accordingly, the Company has manifested its strong concern for and close engagement with social responsibility in all aspects. In order to standardize the corporate governance, the Company established a refined energy management system under which various measures for cost effectiveness, saving cost and curbing consumption were taken in the entire operating process and further systemized and normalized throughout the Company. In response to the requirements of national policy on energy saving, emission reduction and low carbon development, the Company actively develops green and eco-friendly rail transit products, so as to provide customers with preferred system solutions and enhance the operational efficiency of rail transit products.

In the meantime, the Company values product quality and safety as the pivotal element of a corporate. In this regard, the Company implants, starting from product designs, the cultural concept of lifecycle management in all employees.

The sustainable development of the Company depends on the operation under the principles of integrity and trustworthy. CRRC Times Electric always upholds the operating philosophy of integrity, trustworthy and due-diligence, and improves the Company's brand and market position by quality-driven products. Adhering to the concept of mutual benefits and sharing, the Company strives to explore new growth points in various areas within the industrial chain and creates and adds value in all domains of resources. We believe that with our relentless efforts, we will be able to foster reasonable profits for our shareholders, provide quality products and services for customers, seek more benefits and happiness for our staff and deliver greater value for industrial upgrade and social development to enable sustainable operation to evolve as a new and normal practice.

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

# Part I

## Company Profile and Governance

01

### 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 in 2005, including CRRC Zhuzhou Institute Co., Ltd. (formerly known as CSR Zhuzhou Electric Locomotive Research Institute Co., Ltd.). On 20 December 2006, CRRC Times Electric's H shares were listed on the H shares of Hong Kong Stock Exchange (stock code: 03898.HK) and became the first company in the railway transportation industry listed overseas. On 28 March 2016, the Company announced the change of name from "Zhuzhou CSR Times Electric Co., Ltd. (株洲南車時代電氣股份有限公司)" to "Zhuzhou CRRC Times Electric Co., Ltd. (株州中車時代電氣股份有限公司)".

The Company mainly engages in the research and development, manufacturing, sales and technical service of railway transportation equipment including electric drive system, network control, converters, train control system, signal system, electric control system of rail engineering machinery and overall units, electronic products for passenger cars, large power semiconductors, general inverters, sensors, printed boards, composite busbars, urban intelligent traffic system, etc. Its products are widely used in various industries and fields such as electric multiple units (EMUs), electric locomotives, diesel locomotives, passenger cars, urban railway and metro and light rail vehicles, large-scale railway maintenance machineries, electric power and metallurgy etc.

Through years of development, the Company has already equipped with strong and independent research and development and technological innovation ability. It has not only mastered the electric traction drive and network control key core technology which is honored as the "heart" and "brain" of trains, but also built mature and independent innovation and research and development platform based on electric traction drive system field. In addition, it has also built domestic first-class comprehensive detection test system, achieved organic combination with six specialized manufacturing bases of the Company, and become the Company's most representative image "business card".

The Company is in a leading position in the industry by virtue of its powerful overall strength. The Company is the designated unit for AC drive and control system localization of urban rail traction equipment, and the domestic responsible unit for IEC/TC9 industrial standards.

Poised for new breakthrough via innovative development. The Company will adhere to the development strategy of "concentric diversification", extend the development path from core technology to related industries, continuously consolidate the leading position in the rail transit industry, make efforts to enhance the professional new image in electric drive and control system fields, and strive to become an international company with modern management concept, advanced corporate culture, strong core competitiveness, high performance, and great fulfillment of social responsibility.



## Part I Company Profile and Governance

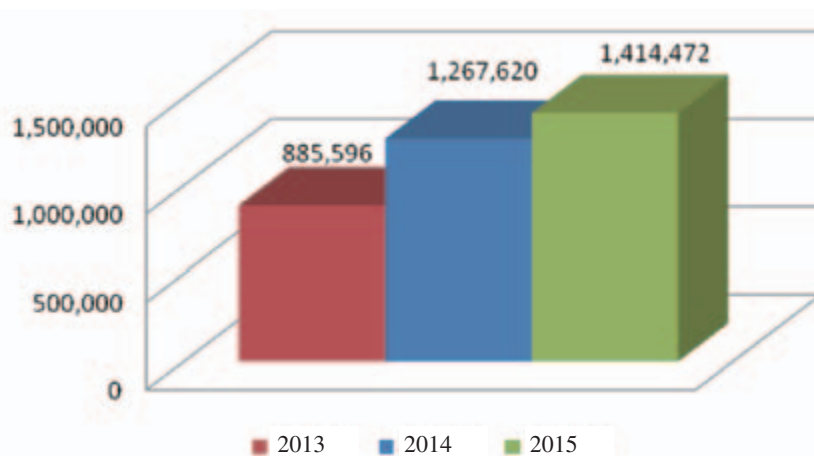
### 2. The Main Economic Performance of the Company in 2015

In 2015, the Company's main business performance indicators have been improved significantly as shown below:

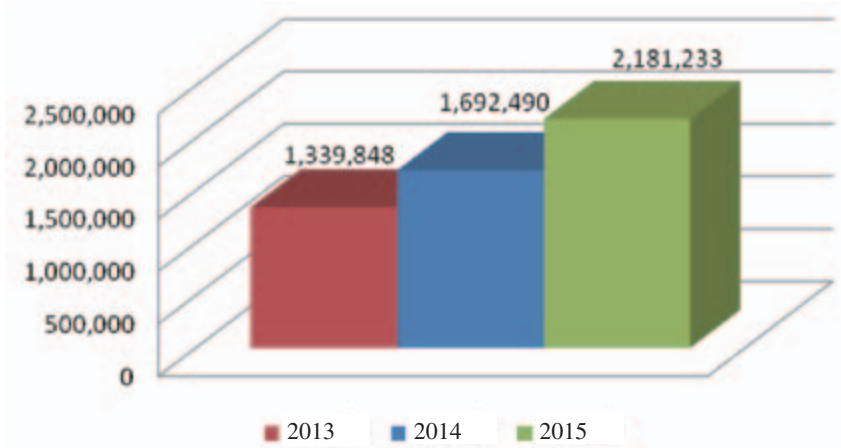
Year	Table of Main Business Performance Indicators			Unit: RMB
	2013	2014	2015	ten thousand
Indicators				
Operating income	885,596	1,267,620	1,414,472	
Total assets	1,339,848	1,692,490	2,181,233	
Total profits	170,358	275,491	344,534	
Total tax payment	116,782	144,834	162,936	
Operating costs	569,455	787,641	860,765	
Market value of the Company's share capital	2,578,406	4,196,184	4,436,589	
Revenue distribution	41,141	47,019	52,896	

\* Note: The revenue distribution in 2015 shall still be subject to the approval of the general meeting.

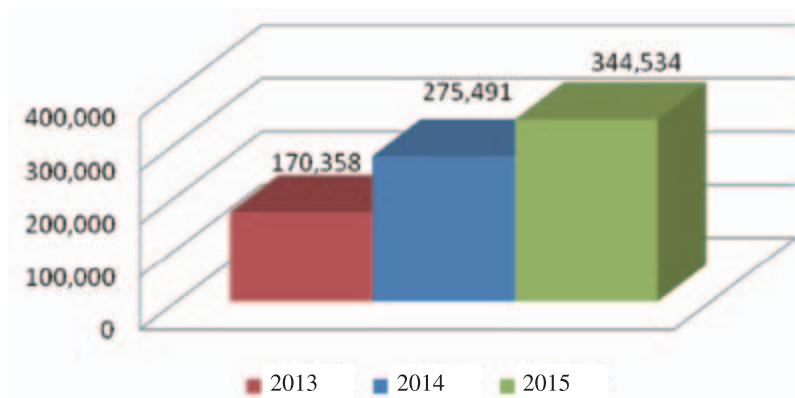
**Operating Income**



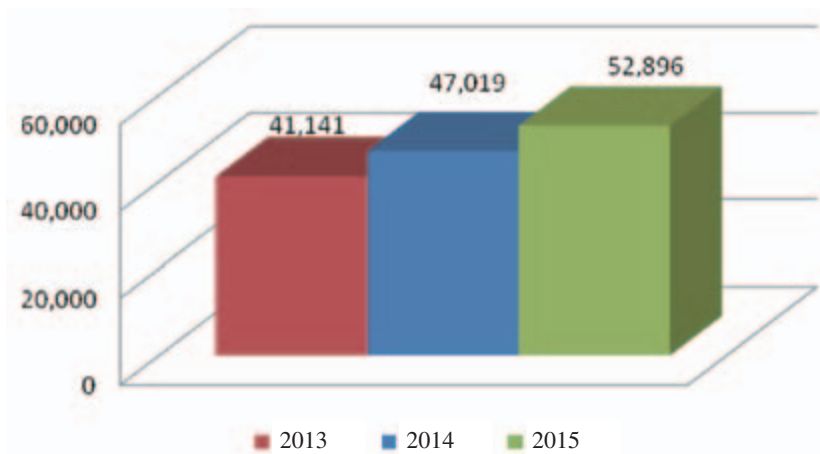
Total Assets



Total Profits



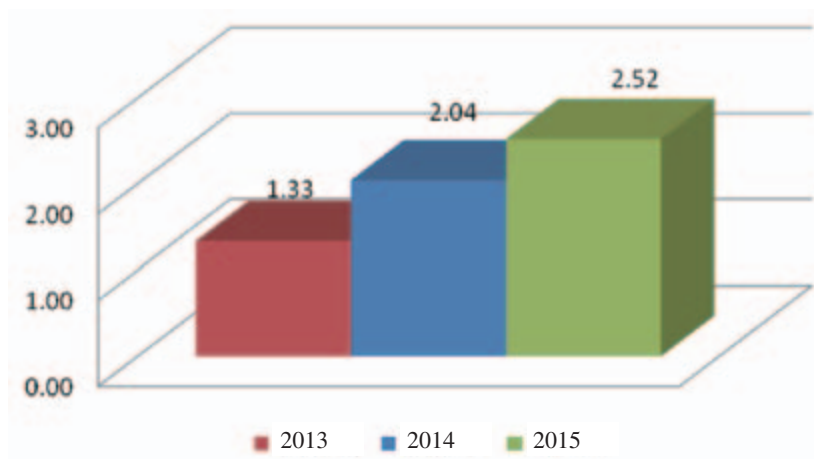
Revenue Distribution



## Part I Company Profile and Governance

The earnings per share of the Company in the recent three years showed stable growth. From 2013 to 2015, it achieved earnings per share of RMB1.33, RMB2.04 and RMB2.52, respectively.

**Earnings per Share**



### — — Sub-product business performance

In 2015, the Company achieved an operating income of RMB14.145 billion, including RMB3.559 billion from traction converters, auxiliary power supply equipment and control systems for Locomotives, RMB4.951 billion from traction converters, auxiliary power supply equipment and control systems for EMUs, and RMB1.873 billion from traction converters, auxiliary power supply equipment and control systems for urban transit trains. The operating income from major products in the recent three years are as follows:

**Operating Income from Major Products in the Previous Years (Unit: RMB million)**

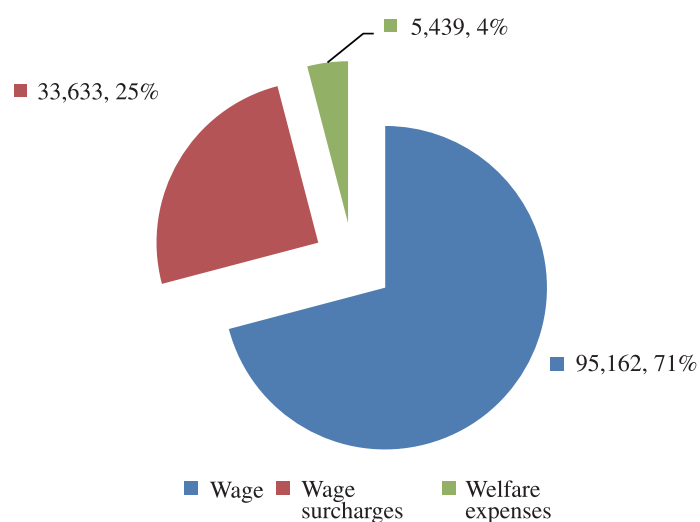
Indicators	2013	2014	2015
Traction Converters, Auxiliary Power Supply Equipment and Control Systems for Locomotives	2,906	3,704	3,559
Traction Converters, Auxiliary Power Supply Equipment and Control Systems for EMUs	2,315	4,759	4,951
Traction Converters, Auxiliary Power Supply Equipment and Control Systems for Urban Transit Trains	956	1,208	1,873
Railway Maintenance Vehicles Related Products	1,103	1,149	1,495
Train Operation Safety Equipment	571	575	561
Key electric part and component products	523	631	646
Marine engineering products and others	482	650	1,060
Total operating income	8,856	12,676	14,145

### — Significant financial support from the government

During 2013 to 2015, the Company has assumed many major scientific and technological projects of various countries, the Ministry of Railways and Hunan Province. It accumulatively obtained funds of RMB16.53 million allocated by government scientific and technological projects in 2013; it accumulatively obtained funds of RMB82.50 million allocated by government scientific and technological projects in 2014; it accumulatively obtained funds of RMB62.61 million allocated by government scientific and technological projects in 2015.

### — Employees' total remuneration and classification

In 2015, the total remuneration of employees of the Company was RMB1,342.34 million, including wages of RMB951.62 million, wage surcharges of RMB336.33 million and welfare expenses of RMB54.39 million.

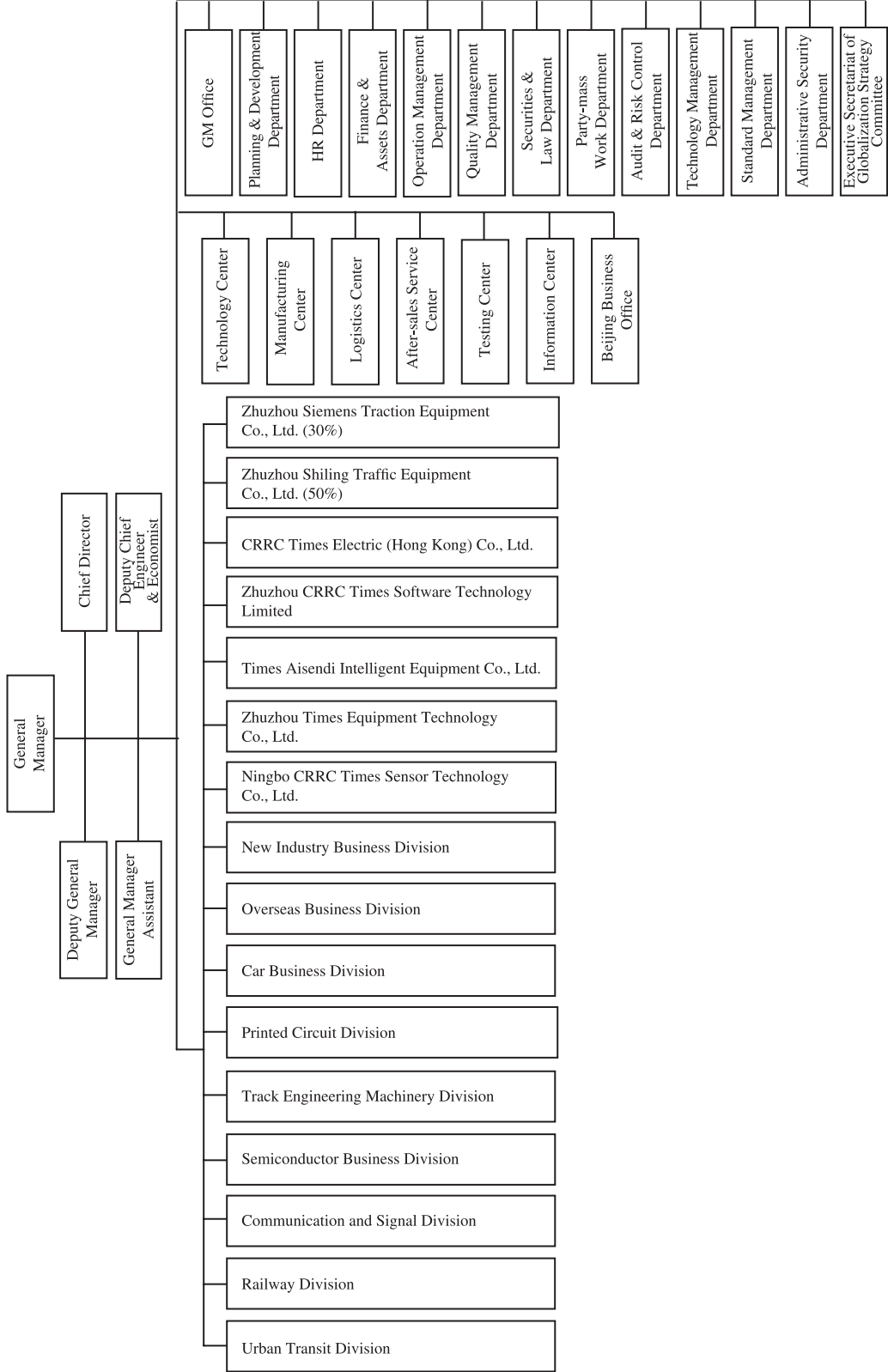


II. Corporate Governance

1. Corporate Governance Mechanism

1.1 Corporate Organizational Structure

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





### 1.2 Company's Governance System

- *Board of Directors*

As at the date of this report, the board of directors (the "Board") of the Company is comprised of 8 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 of Directors*, and takes long-term performance and returns as its priority. Five specific committees, namely strategy committee, audit committee, risk control committee, nomination committee and remuneration committee are established under the Board of directors.

The Company has 3 independent non-executive directors, representing more than one-third of the total number of directors. Independent non-executive directors are of high significance in carrying out works on the improvement in corporate governance and major decisions for the Company, expressing fair and objective advice on major matters of the Company and related transactions, and employing scientific approaches for decision-making of the board of directors so as to safeguard the interests of the Company and minority shareholders.

The Company held 8 board meetings in 2015.

- *Board of Supervisors*

As at the date of this report, the board of supervisors is composed 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 in 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 2 meetings of the board of supervisors in 2015.

## Part I Company Profile and Governance

- *The Management*

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

- *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 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 invited or received requests of several visits of investors in 2015. The Company strictly follows the confidentiality regulation during information disclosure and there was no significant leakage ahead of schedule and misstatement of information in 2015.

### 2. Risk Management and Internal Control

To guarantee the smooth process of the Company's production, operation, and business activities to be in line with the Company's strategies, operational objectives and shareholders' vision and in compliance with the requirements of regulatory institutions, the Company persists in continuous improvement on corporate governance structure and establishment of 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*, etc., the Company has established a risk and internal control system with *Articles of Association* as the general rules, and Rules of Procedures of Board of Directors and Board of Supervisors and working rules of professional committees as the main framework; established an internal control system consisting of systems at three levels, i.e. company governance system, fundamental management system and business categorization management; taken the overall strategy of the Company as the guideline to implement risk management in five aspects – risk evaluation, risk alert, risk response, risk management and supervision, and assessment and appraisal; and formed an all-around risk management system through the comprehensive risk management on the effective implementation of each of the key section.

#### 2.1 Risk Management and Internal Control Organizational System

The board of directors of the Company is responsible for the establishment, improvement and effective implementation of internal control system, and clarifies respective authority of committees, senior management, departments and internal control system of each unit of the Company. The risk control committee under the Board is responsible for reviewing the Company's risk strategy, risk management and internal control, work report on risk control, risk control procedure, mechanism for fraud prevention, regular assessment of risk management policy, supervision of the implementation of the risk management system, supervision of the implementation of various rules and regulations and material operational decisions as well as assessment of significant matters of the Company. The board of supervisors supervises the board of directors with regard to the establishment of internal control system and implementation of internal control. The General Manager is responsible for organizing and leading the design, operation and assessment and evaluation of the Company's internal control system.

The Company establishes 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 strategic risk, market and operational risk, financial risk, legal risk and technical risk, and the risk business working group is also established. By defining the terms of reference and duties for risk control committee, professional risk management group and risk business working groups, risk management duties are well in place to ensure the continuity of the Company's comprehensive risk management.

### 2.2 Risk Management System

The Company has prepared the Internal Control System Compilation covering operation and management of various business activities, formulated and revised *Internal Control Manual*, *Internal Control Evaluation Manual*, Assessment Rules for *Comprehensive Risk Management*, issued and implemented *Comprehensive Risk Management Measures* and Risk Alert Management Measures which together form a robust risk management and internal control system.

The Company always regards risk prevention and control as a primary task and aims to refine the governance structure of the Company. With the direction of the Board and senior management, the Company attaches emphasis to the culture development of risk management, pays attention to the control of projects with higher risks, deepens the new risk management model and persists in adding value to the 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 engendered any risks or dangers with adverse effects to the nation and society, nor has it suffered from any loss therefor.

### 2.3 Supervision and Improvement

The Company supervises the risk work plan, risk evaluation, risk alert, implementation of contingency plan, risk information bank management, risk work report and material risk report on day-to-day, specific and regular basis. In addition, the Company also supervises timely rectification of risk incidents and defects identified to form a subsisting supervision mechanism. The Company adopts a closed-loop management of risk incidents by conducting follow-up and examination tasks on risk incidents on a regular basis each year and also supervising and evaluating the implementation of measures against risk incidents for the prior year recorded in the risk information bank and the status-quo of the incidents.

In 2015, the Company completed the comprehensive daily risk management on schedule with which the projects with higher risk were put into operation as planned with risk under control. The Company has conducted a risk evaluation for the year to form an information bank of risk incidents for 2016. The Company also performed an annual internal control assessment for the sixth year in a row to give an objective view to the effectiveness of the internal control operation of the Company. Ernst & Young was engaged for internal control auditing, the result of which indicated that no material defect of internal control design or implementation of the Company was discovered. As for the management issues proposed by Ernst & Young, the Company will proactively put efforts in solutions and rectifications for the prevention of operational risks.

### 3. Corruption Combat and Advocacy of Integrity

In 2015, under the stewardship of party and political leaders and under the guidance of high-level party committee and discipline committee, the Company progressed discipline inspection and monitoring in line with the objective of promotion of anti-corruption of the Party and adhered to the combined approach of educating as a deterrent and cultivating the atmosphere of integrity; improving the system quality and supervising the implementation; preventing the occurrence of corruption and combating the corruption when discovered early; and specific monitoring and regular monitoring. The Company also organized and coordinated the finance, audit and fundamental party units for solid and effective implementation of relevant works.

The tasks performed in 2015 were primarily as follows:

#### **3.1 Strengthening of Thought Building Development for Cadres by Conducting Educational Activities to Promote Anti-corruption for the Party on an On-going Basis**

**Deterrent Education:** During the year, the Company organized a visit to prisons in Changsha and Qiaotoubao, Zhuzhou for over 120 professional managers and over 80 employees holding key positions, serving as deterrent education. The Company also organized over 40 staff members to attend a film session "You won't get to live twice", an educational film about anti-corruption and advocacy of integrity.

**Integrity conversation system:** The Company conducted integrity conversation with 14 new cadres before they took office. The new cadres have signed the letter of undertaking for integrity.

**Education on laws, disciplines and regulations:** Courses and examinations on party disciplines, national laws and corporate regulations and systems were provided to members with each party (headquarter) branch as one unit, in which a total of over 1,000 people participated, and over 900 of which were employees holding key positions and over 100 were professional managers. The Company organized study on regulations such as *Standards on Integrity and Self-discipline of the Communist Party of China* and *Regulation of the Communist Party of China on Disciplinary Actions* to strengthen employees' will of anti-corruption and resistance against temptation.

### **3.2 Focusing on Effective Monitoring by Reinforcing Supervision on Key Areas and Weaknesses**

**Specific monitoring:** During the year, the Company established 3 corporate-level specific monitoring systems, namely the specific effectiveness monitoring system for supplier management, specific effectiveness monitoring system for non-production material purchase management and specific effectiveness monitoring system for tender process model standardization. During the year, the Company reduced its number of exclusive suppliers by 48 in total, which involved 223 types of materials. The Company will standardize the tendering process and continue to purchase through tendering. Tendering tasks in relation to fundamental development, sourcing and outsourcing, repair and maintenance, management consultancy and scientific research coordination were implemented comprehensively.

**Themed monitoring:** The Company mobilized each unit and department to carry out self-examination and self-correction regarding 115 highlighted issues in 17 areas discovered in the government-owned corporate inspection and audit process along with the practicable matters suggested by the Company in terms of marketing, material sourcing, engineering construction, financial management, cadre management, government funds, investment management. The Company also arranged on-site verifications which were jointly carried out by financial officers and auditors who gave recommendation for improvement, and follow-up examination.

**Regular monitoring:** Specific monitoring works were carried out by each party (headquarter) branch at lower levels based on actual needs. They also conducted an overall examination on the non-local subsidiaries in Shenyang, Hangzhou, Guangzhou and Kunming.

### **3.3 Enhancing Standardization Management to Achieve What “Seems to be Impossible” Through System and Improving Quality of Systems and Procedures**

The Company focused on streamlining, optimization and consolidation of systems and procedures. The primary person in charge of the party sub-committee and members of core management assumed the roles of project heads to effectively promote works of system and procedure development and optimization. A number of key systems and procedures improved the management efficiency and operability while management control over key areas and crucial stages was further put into operation. The notion of keeping up with the system and procedure was augmented. Management over costs and expenses was implemented effectively in accordance with the principle of “**Budgetary Control, Proportion Control, Report in Advance and Timely Reimbursement Claim**” was put forward effectively.

### **3.4 Adhering to “Eight Directives for Official Conduct” and Combating “Four Undesirable Work Styles”**

The Company strived to pursue the “Eight Directives for Official Conduct” and combat “Four Undesirable Work Styles” in its daily course of business by emphasizing such topics in the meetings, inspecting in details and stating the requirements according to such principles during discussion of business matters as a regular practice. During on-site inspection, emphasis was put on the expenses of leading cadres in this regard and reimbursement claim on behalf of others was strictly prohibited. During the inspection to the China Railway and Railway Administration, the Company paid close attention to the inspection status and promptly delivered the requests to address the deviations from the “Eight Directives for Official Conduct” as notified by the China Railway on 21 July and 11 August to the key personnel and required them to reinforce the study, awareness and prevention and to make well preparation for warning, reminder and education work as necessary. During the inspection, specific matters were examined such as business entertainment fee, specific marketing fee, office size, official vehicles for general use, standard of receiving guests and standard on reception venues, tobacco and alcohol. The Company is committed to persistent efforts on implementation, inspection and rectification to form a new work normal.

### **3.5 Setting Up a Smooth Petition System and Implementing Verification of the Petitions Raised by Whistle Blowing**

The Company makes the telephone number and mail address of its disciplinary inspection and supervisory division available to the public and announces the same during the tendering activities by printing such information on the tendering documents. Verification will be carried out for the concern raised regarding the winner of the tender and reply will be given to them.

As required by the top level, verification of petition cases of 中車株洲電力機車研究所有限公司 (CRRC Zhuzhou Institute Co., Ltd.) (“CRRC ZELRI”) is actively conducted and the implementation of related inspection works is organized.

### **3.6 Organization and Completion of Various Work Designated by the Superior Departments**

The Company completed the related works set out in *Construction Project and Equipment Tendering Project Supervision*; the study on integrity for B level cadres and individual reporting and registration work; the reporting and registration form for “Secret Funds” or “Off-Account Funds”; and works on *Supervision over Entertainment Fee* organized by disciplinary committee of CRRC ZELRI.

The Company participated in the process streamlining and optimization and service sourcing enhancement works, carried out inspection on inventory security and assets management in accordance with the high-level conference and submitted analysis report and recommendation in this regard;

Rotation of key positions: there were 135 employees who took up job rotation, representing a job rotation rate of 58%.

### III. Important Honors of the Company

No.	Honors
1	"Top Ten Leading Enterprises in Intellectual Property Rights in Hunan Province"
2	"Model Enterprise for Integration of Informatization and Industrialization in Shaanxi Province" (CRRC Baoji Times)
3	"Leading Enterprise in National Electronic Information Industry"
4	The First Batch of "Model Enterprises in Smart Manufacturing in Hunan Province"
5	"National Civilized Unit"
6	National Innovative Team in "Striving for Dreams and Contributions": "Innovative Team in Train Network Control System and Information System" of the Company
7	"High and New Technology Enterprises in Shaanxi Province": CRRC Baoji Times
8	The Second Prize in 2015 Patent Award in Hunan Province: "Power Module Cabinet" (ZL201110081709.5)
9	The First Prize of the "10th Presentation in National Industrial Engineering Application Competition of Tsinghua IE"
10	The First Prize for Innovation Achievement in Corporate Management Modernization in Hunan Province: <i>To Promote the Upgrade of Operation and Management of Advanced Rail Transit Manufacturing Enterprise via Internet through Mobile Network</i>
11	The Second Prize for Innovation Achievement in Corporate Management Modernization in Hunan Province: <i>Market Allocated Resource-Oriented Innovation of Management Model for Large-Scale Enterprise or Conglomerate</i>
12	The Second Prize for Innovation Achievement in Corporate Management Modernization in Hunan Province: <i>Establishment of the System of Developing Innovative and Integrated Products in Rail Transit Equipment Enterprise</i>
13	The Third Prize for Innovation Achievement in Corporate Management Modernization in Hunan Province: <i>Exploring Corporate Marketing, Training and Management in Respect of Urban Rail Transit</i>
14	The Third Prize for Innovation Achievement in Corporate Management Modernization in Hunan Province: <i>Initiated Informatization of the Implementation System of Manufacturing of Rail Transit Enterprise</i>
15	The Third Prize for Innovation Achievement in Corporate Management Modernization in Hunan Province: <i>Building and Application of Mobile Platform APP in Rail Transit After-Sales Service Informatization</i>



### No. Honors

- 16 Special Prize in Technological Invention by China Power Supply Society: "Research and Development and Application of IGBT Chip with High Voltage and High Power Density" of the Company
- 17 The Second Prize in National Technological Invention: *Research and Application of Key Technologies in Traction Control of High-Speed and High-Tonnage Trains*
- 18 The First Prize in Technological Invention in Hunan Province: *Research and Application of Key Technologies of Permanent Magnet Transmission System with High Power and High Speed*
- 19 The Second Prize of Science and Technology Progress Award in Hunan Province: *Research and Development of Automated Power Transmission System of High-Speed Electric Multiple Units*
- 20 The Second Prize of Science and Technology Progress Award in Hunan Province: *Research and Application of Key Technologies of Power Transmission System of Diesel Locomotive*
- 21 The Third Prize of Science and Technology by China Railway Society: *Research and Development of 4400HP Power Transmission System of Diesel Locomotive*
- 22 The Second Prize of Science and Technology by China Railway Society: *Key Technologies and Industrialization Application of Serial Sensors for Rail Transit* (Ningbo Times)
- 23 Approval was obtained for the Key National Laboratory for Innovative Power Semiconductors

## IV. Corporate Value and Stakeholders

### 1. Corporate Values

**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 priority-preferred supplier of overall solution for the electrical systems in areas of global transport and energy

**Values:** Never forget where our achievements come from. The interests of shareholders are supreme; user first, the customer's needs are our long-term motivation; people-oriented, each employee will share the success with the Company

#### **Strategic Guiding Ideology in 2015:**

In line with the strategy of "Highly-Efficient Organization" and "Globalized Operation", the Company, operating in a concentric and diversified rail transit industry, focuses on its core value, expands synergy and has successfully accomplished the objectives and tasks of various Twelfth Five-Year Plan related projects. The Company will comprehensively consolidate its core foundation for sustainable operation.

## 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 with 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 and staff, employee mark-based reward system, executives meeting day, consultation, democratic assessment, employee exchange forum, etc.	Providing employees with safe, fair and comfortable working environment, more benefits and growth opportunities	Employee satisfaction, loyalty, turnover rate and investment on 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, holiday parties, active participation in and support for community activities	Well-organized manufacturing to promote a prosperous and peaceful community with safe and healthy living environment	Investment in community constructions, times of participation in community activities and amount of donations

### V. Opportunities and Challenges

In 2015, the accelerated renminbi internationalization and establishment of Asian Infrastructure Investment Bank enhanced the influence and discourse power of China over the international economy. Meanwhile, strongly driven by the strategies of “One Belt One Road” and “High-Speed Railway Diplomacy”, the rail equipment business expanded rapidly overseas. Accordingly, the operating income of the Company exceeded RMB14 billion and the Company was granted the “2nd China Quality Award”, which further consolidated its leading position in the industry and steadily promoted the brand image and influence of China’s quality products. While the focus of railway construction diverged from mainlines to inter-city railways of short-to-medium distance, the development of mainline railway would slow down and the inter-city and urban railway market is likely to realize an explosive growth. It is expected that the China rail transit market will maintain an overall moderate growth in 2016, and the Company will face new challenges amidst opportunities.

#### • Opportunities

As more locomotives and electric multiple units (“EMUs”) were put into operation recently, the railway safety and efficiency drew more attention of the manufacturers. The huge room for the growth of inspection maintenance business drives the sustainable development of the machinery for railway construction. Meanwhile, railway transit industry has keen demand for innovative technology. Informatization, digitalization, intensive localization of products, centralized design and product spectrum development will become the key development in terms of technology. Meanwhile, new business models such as urban railway market PPP and general contracting of electro-mechanical services emerge.

For emerging market, the new energy vehicle market in China will enter a new development phase in 2016. The development of new energy passenger vehicles is going to be accelerated. In particular, the market demand for new energy vehicle systems and products as parts and components, such as electric drive systems, engines of electric vehicle and power modules will remain persistently high. Meanwhile, following the exploitation of offshore petroleum in deep sea regions and the active exploitation of offshore petroleum in newly explored areas in the Mediterranean Sea and East Africa, the equipment for deep sea marine construction has become increasingly popular in the market.

#### • Challenges

Affected by the sluggish global economy and the slowdown of China’s economic growth and the increasingly saturated growth of domestic railway construction, the Company will suffer from such impact on its continuing and steady business growth. Meanwhile, the scale of the global semiconductor market will remain moderate. Affected by the sharp decline of international crude oil price, global market demand for marine construction equipment shrank significantly as well as both quality and prices of related equipment, resulting in a keener market competition. With the onset of the “Era of Curbing Government Subsidies” and more fierce market competition, the structured explosive growth triggered by the government subsidy policy can hardly sustain in the future.

## Part I Company Profile and Governance

### • Our Solutions

Facing the sophisticated external environment, the Company will actively seize the opportunities and respond to challenges, firmly implement the strategy of “Highly Efficient Organization and Globalized Operation” and promote the diversified development of the industry to consolidate our own strength and enhance our core competitiveness. Meanwhile, leveraging the advantage in its comprehensive strength, the Company will actively participate in the competition during globalization and expand its business into the relevant sectors.

——To establish a platform for the repair and maintenance industry to change the business model from product-oriented to “product + service”-oriented; to effectively capitalize on the synergy with joint venture companies; to conduct overhaul and repair and maintenance business and promote “3 Ways of Improvement in Terms of Overhaul” such as overhaul equipment automation, overhaul operation standardization, overhaul data informatization; to enhance corresponding product development across various platforms.

——To enhance the ability in internationalization, change the business mode into globalization operation; strictly follow the multinational business strategy of CRRC, strengthen the layout of its overseas marketing network, enhance the ability in localized operation; to upgrade its proprietary brand image through development of certain demonstration projects overseas; To bring our oversea subsidiaries into full play and integrate global resources for business expansion, so as to enhance its multinational operational index.

——To persist in the technology-oriented as well as concentric and diversified development, insist on the traction of “double-effect” and its comprehensive upgrade; to consolidate and enhance the existing industry segment, actively and steadily undergo business expansion, continue to explore new incentive system, actively introduce various innovative development models such as venture capital and fund, focus on all our strengths and competitive edges to foster an accelerated growth of the emerging industry.

# Technological Innovation and Product Liability

## 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 was comprised of the deputy general manager in charge of technology, deputy general engineer, chief expert, and technical supervisors in all business units (departments) ("Technical Committee"). 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 Liability

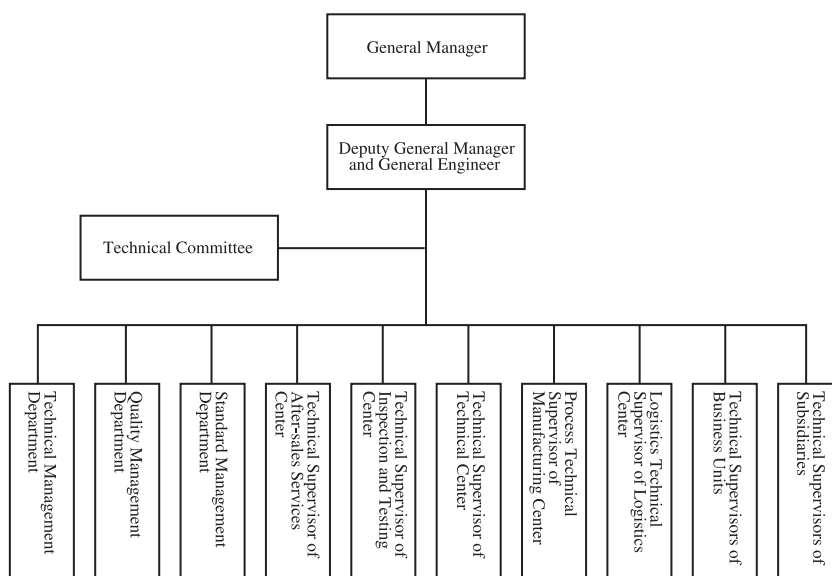


Chart: R&D Management Institution

### 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, and the investment in scientific research accounted for approximately 7% of the sales amount during the year. In 2015, the Company approved 512 proposals of scientific research projects.

## Part II Technological Innovation and Product Liability

### 1.3 R&D Team and Advantages of Hardware Resources

The Company's scientific research and technological personnel accounts for over 47% 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 with production workshop covering an area of 320,000 square meters. Among which, the Company's power semiconductor production base mainly produces bi-polar power rectifiers, thyristors, GTO and IGCT. 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. Meanwhile, the Company is also an attached unit of the Testing Station of Electric Traction Equipment under Railway Product Quality Supervision Center.

## 2. Technological R&D Results

### 2.1 Reporting

In 2015, the Company applied for 38 external projects, among which 32 project proposals were approved, including 8 state-level, provincial-level and ministerial-level projects, and project fund of RMB139.878 million was granted. The newly proposed "Standard Testing and Verification for Application of Railway Transportation Network Control System" project was also successfully approved, which is a specialized state-level project for intelligent manufacturing.



## Part II Technological Innovation and Product Liability

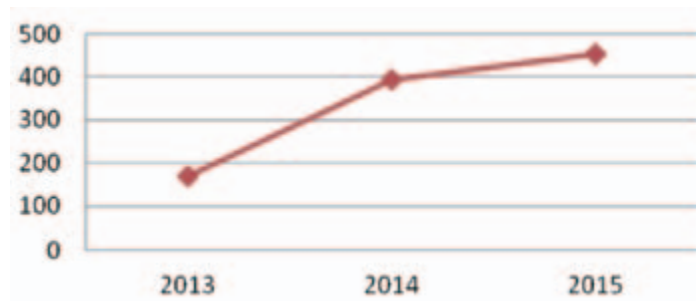
### 2.2 Patents

In 2015, the Company applied for a total of 453 patents, including 307 invention patents. By the end of 2015, the Company has cumulatively applied for 1,819 patents (59.8% of which were invention patents), cumulatively owned 886 valid patents (39.3% of which were invention patents) and cumulatively obtained 186 copyright registrations for computer software.

In 2015, one of the patents of the Company was awarded the 17th China Patent Excellence Award, "A type of traction power supply device with energy feedback and its control method" (ZL201110118007.X);

Year of Application	Number of Application
2013	171
2014	395
2015	453
Total	<u>1,019</u>

The Number of Patent Application





## Part II Technological Innovation and Product Liability

### 2.3 Awards

During the year, the Company was successfully granted 12 different technology awards, among which 7 awards were provincial- and ministerial-level or above. Among those awards, the Company has been awarded with 1 second prize of the State Technological Invention Award, 1 first prize of Hunan Province Technological Invention Award, 2 second prizes of Hunan Province Science and Technology Progress Award, 1 special prize of Technological Invention Award issued by China Power Supply Society, 2 prizes of Science and Technology Award issued by China Railway Society, 2 prizes of Science and Technology Progress Award of Zhuzhou City and 3 prizes of CSR (currently known as CRRC) Science and Technology Progress Award.

### 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. At the beginning of 2015, after several reviews by the experts from the Technical Committee, it was finally determined that 40 scientific research projects with great strategic significance or economic benefits would be added as significant projects, such as *Proprietary CRH2 Series EMU Network System*. The Company also implemented an assessment and incentive system for significant scientific research projects, effectively pushing forward process control and objective management of significant projects. At the same time, the Company strictly executed weekly reporting, monthly reporting and monthly regular meeting system, thus ensuring realization of annual objectives of 77 significant projects under research in 2015. Through strict process control, the general progress of projects was well under control; 27 projects were completed, with a completion ratio of 100%.

Cases of Implementation of Significant Projects:

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## Part II Technological Innovation and Product Liability

### 3.1 R&D of China's Standard EMU Electrical System

In 2015, the Company principally completed the type tests for traction auxiliary converters, network control system, chargers, contactor boxes and shaft temperature detecting devices, as well as various research tests. It also completed the delivery and loading of electrical system products and cooperated in the completion of test runs of the railway circuit, high-speed tests for the main line and electrical system tests for other vehicles. The relevant tests of electrical system were basically passed in a single attempt, and the high-speed impact test at a speed of 385km/h was successfully completed for Datong-Xi'an Railway. This project has achieved various technological innovations, including highly integrated design technology, motor noise control technology, modular design technology, vehicle external radiation suppression technology as well as dead-head and regenerative braking technology. As for social benefits, since the standard EMU traction system is completely self-developed, it served as an important product platform for the export industry in China to transform towards high-end products. In terms of environmental benefits, the traction system in this R&D project is featured with high power density, which has enabled the Company to save cost and operate in a more environmentally-friendly manner, and in turn improved the electromagnetic and noise environment along the high-speed railway. In addition, the adoption of various technologies, such as dead-head power generation and uninterrupted neutral session passing power supply will also enhance the comfortability of vehicles.



## Part II Technological Innovation and Product Liability

### 3.2 R&D of Electrical System of 8-axles High Speed Electric Locomotives for Passenger Transport

In 2015, the Company principally completed the prototype production and type tests for converters, network control system and monitors as well as system integration and testing of ground network. Factory test has been completed for one of the 8-axles locomotives on complete vehicle basis, while Locomotive No.1 was ready for test runs of the railway circuit. On the other hand, another type of 8-axles locomotive has completed system integration and testing, and it is currently undergoing factory adjustment and test on complete vehicle basis. The size of converters of the project is 3500\*1060\*2000 and the maximum power for each converter is 6400kW, both contributed to further enhancement of the level of integration. PWM four-quadrant rectifier control technology has been adopted for train power supply cabinets due to its high power factor, excellent power sources properties and high water cooling and heat radiating efficiency. The internet control system, having integrated with DTECS-1 and DTECS-2 platforms and adopting a control model which is mainly based on WTB+MVB and supplemented by ECN, is in compliance with the requirements of the latest international standard IEC61375-2014. The project also solved a technical difficulty of over-temperature of electrical machineries by lowering the intermediate voltage and lowering the harmonic voltage but, as compensation, increasing the power input to help stabilizing the intermediate voltage, and eventually passed the examination.



## Part II Technological Innovation and Product Liability

### 3.3 R&D of Electrical System of Intercity EMU in Macedonia

In 2015, the Company mainly completed the prototype production, type tests and system integration and testing of ground network for traction converters, network control system and chargers. Currently, the first EMU is undergoing on-site adjustment and test in Macedon on complete vehicle basis whereas the second EMU is undergoing performance test on the railway circuit on complete vehicle basis. The project adopts the axis control mode for the main circuit of the traction system and eliminates the secondary resonant circuit. It is featured with complete protective function for auxiliary power supply system, including AC400V/DC110V ground-mounted detection technology. It also deploys optimized ducts and pole-changing fans to reduce noises from converters and adopts secondary ripple suppression technology and lightweight design.



## Part II Technological Innovation and Product Liability

### 3.4 R&D of Brake Energy Regeneration System of SS4B Locomotive

In 2015, the Company mainly completed the first trial production and testing of microcomputer control cabinets, brake energy regeneration converters, converter control system and other products, and commenced the loading and testing in mid-March 2015 and the official launch and operation in mid-May. The product has been running for more than half a year with tonnage exceeding 5,000 tons and an average power generating capacity of over 8,000 kWh for a single trip. After on-site tests, the power generating capacity, power factor and harmonic content were well beyond user expectations and demands. The users were highly satisfied and have pre-ordered 6 locomotives in 2016. The product uses regenerative brake in lieu of the original rheostatic brake, which provides better energy efficiency and generates great economic and social benefits.



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## Part II Technological Innovation and Product Liability

### 3.5 R&D of Electric Traction System of Yanfang Line of the Beijing Subway

In 2015, the Company mainly completed the research and development and type test of traction inverter, high-voltage device box, high-voltage bus devices, auxiliary power box, expanded power supply cabinet, transmission control unit and train control and diagnostic system, and successfully passed internal and external FAI as well as having the external FAI works of purchased parts completed. On-site debugging and on-site type test have substantially gone through the check-list for test routes at assembly plants and the functional debugging in relation to unmanned technology is now underway. Currently, unmanned technology has become the development trend of rail transit in the future with promising market prospect. For example, Beijing Subway alone has planned 3 unmanned routes in the next few years. The successful implementation of the project will enable the Company to take the lead in grasping market shares in the unmanned traction system market and strengthen the Company's leading position in high-end urban rail transit market. It is believed that this shall create huge economic benefits for the Company in the future.



## Part II Technological Innovation and Product Liability

### 3.6 R&D of Electric Traction System of North Extension of Shanghai Metro Line 11

In 2015, the Company mainly completed the research and development of electric traction drive system, auxiliary power supply system and train control and diagnostic system, while type test, module test and type test within train factory were also completed. So far, the Company delivered the fifth locomotive (6 in total). For the first time, the project has completed the research of DC110V storage battery traction technology; the design of electric traction brake characteristics and main circuit parameters of Type A metro trains with speed of 100km/h which takes full account of the matching between electrical machinery capacity and heat capacity of brake systems; the SIL2 certification for train control and diagnostic system; the design of 160kVA auxiliary inverter (with the next generation of main and auxiliary control platform). The project also has a measured noise of  $\leq 75\text{dB(A)}$  whereas the noise levels of overseas products are 77dB(A) and 81dB(A).



#### 4. Innovation Influence

In 2015, the Company fully utilized the platform of IEC/TC9 domestic technical counterpart to actively participate in international standard activities, presided over establishment of 9 international standards: *Wireless Reconnection System for Rail Transit Freight Traction Vehicle*, *Vehicle-mounted Video Surveillance System* and *Power Connector for Locomotive Vehicle*, etc.; participated in the formulation of 35 international standardization, among which the Company initiated the drafting of IEC 62845 *Wireless Reconnection System for Rail Transit Freight Traction Vehicle* that was officially promulgated in August, marking the fact that the Company's technical

## Part II Technological Innovation and Product Liability

specification of wireless reconnection has become the industry standard. Until now, the Company has been cumulatively responsible for 14 international standard working group of IEC/TC9, presided over establishment of and promulgated up to 5 international standards, consistently enhancing our international influence and discourse power. Zhang Lizhi, the director of Standard Management Department of the Company, was granted IEC 1906 award as the recognition of IEC on our ability in rail transit standardization. Apart from the efforts towards the domestic technical counterpart, the Company has also consolidated the engagement with UIC, other professional standard committees under IEC and ISO/TC269 and constantly renewed the platform for the work of international standardization.

As the secretariat of National Technical Committee 278 on Electric Equipment and Systems for Railways of Standardization Administration of China, the Company simultaneously commenced 17 national standards revision projects and totally completed 5 drafts for approval, 8 drafts for review and 4 working group proposals in 2015, with “12th Five-year” Plan of National Technical Committee 278 on Electric Equipment and Systems for Railways of Standardization Administration of China as the guideline and the technical standard system for electric traction equipment and system as the basis. As the responsible unit for rail industry standards and traction electrical equipment technology standard, the Company simultaneously commenced 37 industry standard projects and totally completed 12 drafts for approval, 6 drafts for review and 1 draft for recommendation during 2015. At the same time, the Company also emphasized on closely integrating the tasks of standardization with research and development. It undertook the project of *Research on Important Standards Concerning High-speed Train AC Drive and Electrical Systems* under the Standardization Program of Special Scientific Research on Quality Control in Public Welfare Industry, one key scientific research project of China Railway Corporation: *Research on Standards Concerning Rolling Stock Equipment Vibration and Traction Electrical Equipment and System Industry and Amendments of National Standard System* of the original CSR project, which supported the amendments of standardization in the form of research topics and accordingly expedited the progress of amendments of key standard systems. Among them, the key project of “Research on Important Standards Concerning High-speed Train Electrical Systems” successfully passed the acceptance review in October 2015, becoming one of the integrated standards from the standard system for the High-speed Train Electrical Systems and China’s standards for going global. In 2015, the Company successfully reported as a trial unit for standardization of the industry of rail transit equipment manufacturing and applied for the executive directorship of “China Standardization” Press, promoting the engagement of the Company with the domestic standardization authorities of China and related foreign authorities, benefitting the practice and management of standardization as well as development of scientific research and innovation, thereby enabling the upgrade of the standardization of the Company.



### II. Product Liability

#### 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.

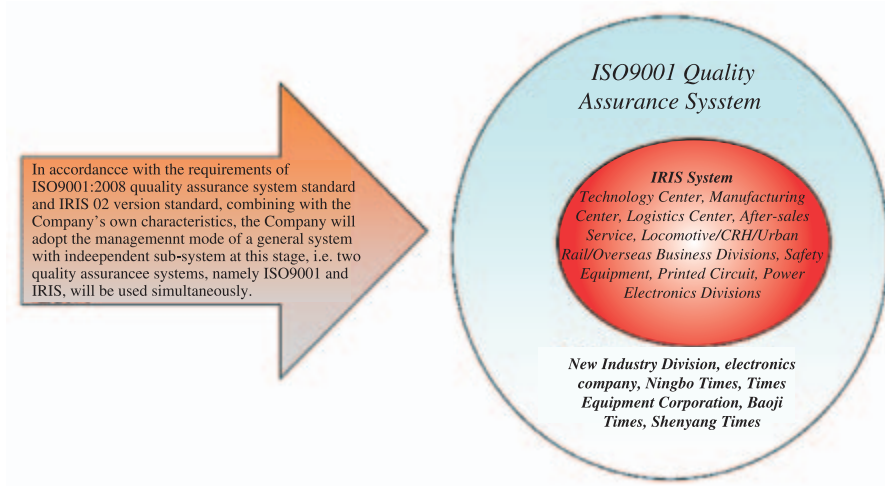
##### ***1.1 Quality Management System and Certification***

The Company has established a complete quality assurance system based on the ISO9001:2008 quality management standard. It has also complied with the requirements of IRIS standard (International Railway Standard) to implement quality control during the production process of its products and the realization process thereof, while keeping suppliers under rigorous management and actively promotes project management and RAMS (reliability, maintainability, availability and safety) management.



## Part II Technological Innovation and Product Liability

### Quality System Management Mode:



## Part II Technological Innovation and Product Liability

### System Certificates:

Types of system	Certificate	Description
ISO9001:2008		<p>The Company passed the ISO9001:2000 version quality assurance system certification of British Standards Institute Limited (BSI) in 2005 and the 2008 certification (as amended) in November 2009, respectively. In October 2010, TUV Rheinland (Guangdong) Co., Ltd. carried out review on the Company's ISO9001 and the Company passed the review in October 2012. The Company passed the ISO9001 certification of Bureau Veritas Certification (Beijing) Co., Ltd. on 31 December 2014</p>
IRIS 02 (International Railway Industry Standard)		<p>In October 2008, the Company passed the IRIS 01 certification of TUV Rheinland (Guangdong) Co., Ltd., and passed the review in October 2012</p> <p>The Company passed the IRIS certification of Bureau Veritas Certification (Beijing) Co., Ltd. on 28 October 2014</p>

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## Part II Technological Innovation and Product Liability

Types of system	Certificate	Description
CMMI Level 3		The Company passed CMMI-system Level 3 certification in December 2009 SEI (Software Engineering Institute)
EN15085-CL1 (Welding Certification System for the Rail Transit Industry)		The Company passed German SLV EN15085-CL4 certification in November 2012 The Company passed the EN15085-CL1 certification of Bureau Veritas Certification (Beijing) Co., Ltd. on 5 July 2014

### Quality Awards:

First Hunan Governor Quality Award in 2011

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

AA Enterprise of Hunan for Industrial Product Quality Classification Regulation in 2013

AAA Enterprise of Hunan for Quality Credit in 2013

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

National excellent quality management group for seven consecutive years

2nd China Quality Award in 2015

## Part II Technological Innovation and Product Liability

### 1.2 Quality Monitoring Method

The Company has set up 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.

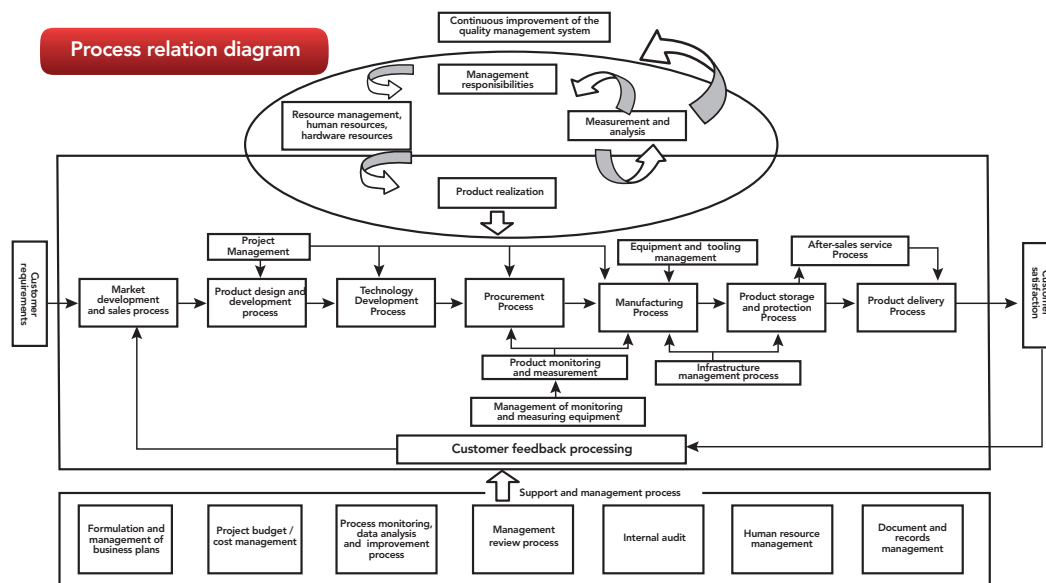
#### Process Monitoring:

- *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 Liability

### — *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.

### — *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.



## Part II Technological Innovation and Product Liability

### 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 Harmony locomotives products from a single board to the whole set including cabinet processing is timely and effectively monitored.

### Stringent Control over Electronic Components:

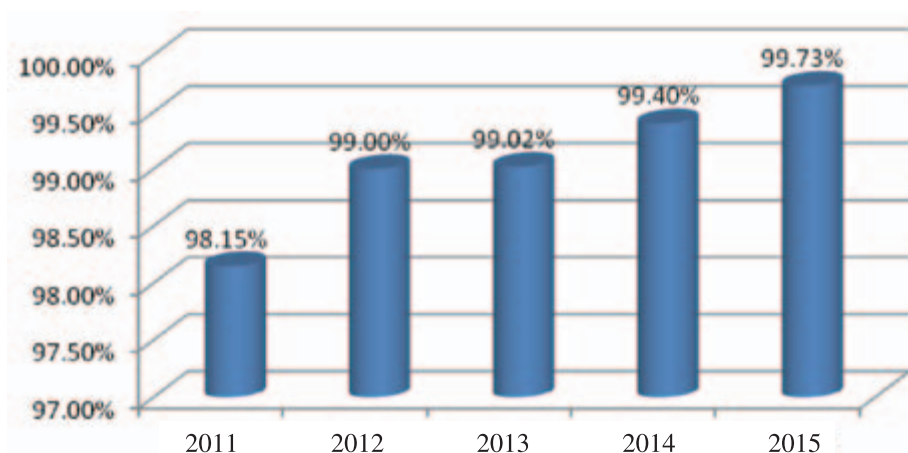
The Company has also established a sound ESD and MSD control system for the manufacturing bases to exercise stringent control over electronic components in terms of workers, machines, materials, methods, environment and measurement, which in turn helps ensure product reliability.

### 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.

### — Product Delivery Quality

**One Time pass rate for delivery**



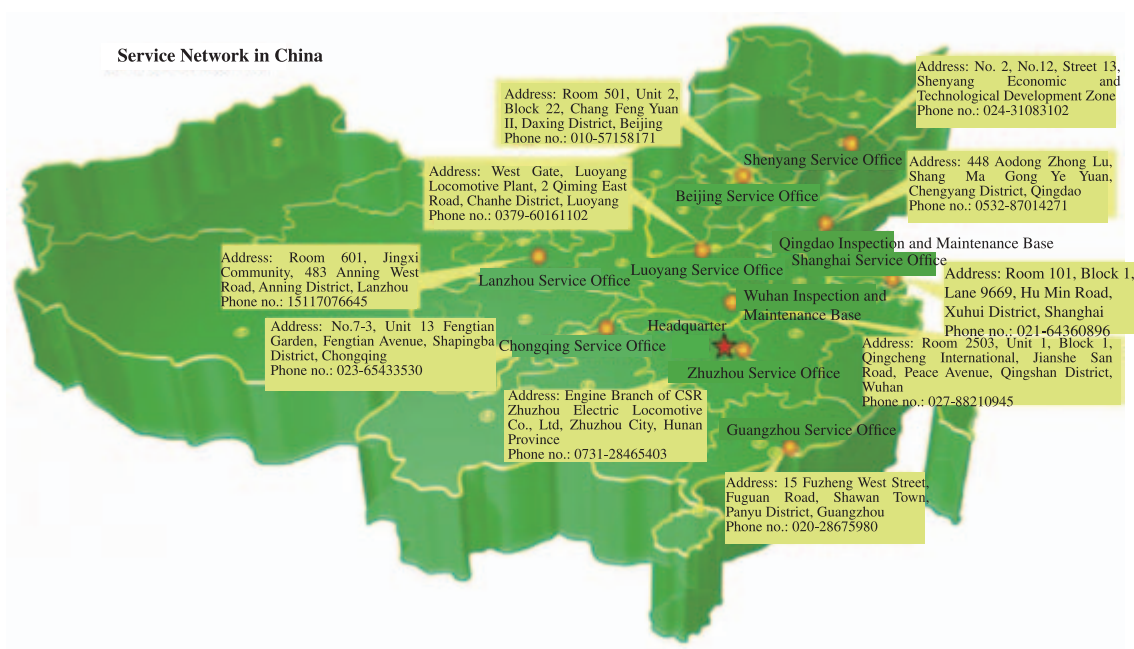
## Part II Technological Innovation and Product Liability

### 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 8 service offices in China, including Beijing, Shanghai, Chongqing, Shenyang, Guangzhou, Luoyang, Lanzhou and Zhuzhou with two repair and maintenance service centers in Qingdao and Wuhan. The Company has more than 200 full-time after-sales service employees with over 140 domestic and overseas users served in total. Further, the Company has also set up the service centres in Australia, Singapore, Brazil, Kazakhstan and Turkmenistan, etc. 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 set up a three-level service model in China, with 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 Liability

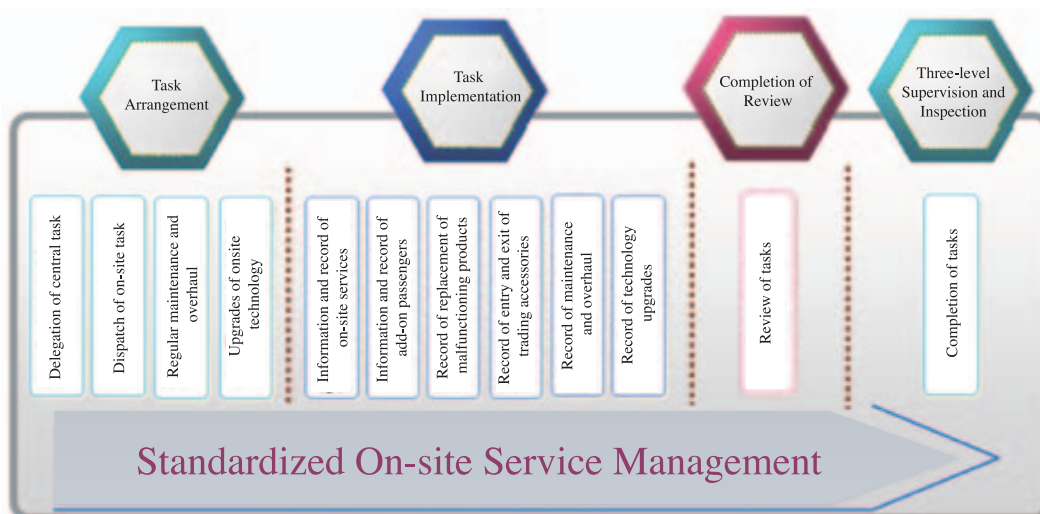
### 2.2 After-sales Service Implementation System

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.

With the after-sales service information platform as our support, we have established 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 On-site maintenance and repair, and developed a work order system.

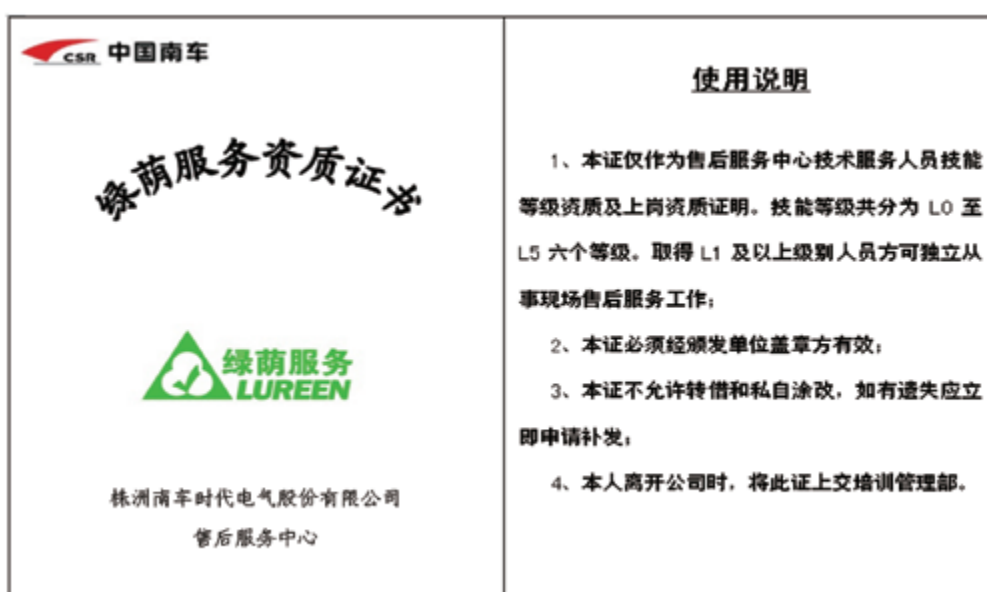
The Company has set up a complete operation and monitor workflow from customer feedback information to the conclusion of a case, with which, no matter from occurrence of the incident to task assignment, from task implementation to task efficiency assessment, from troubleshooting management to use of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



## Part II Technological Innovation and Product Liability

### 2.3 After-Sales Service Team Management

In order to align service staff's skills with product upgrade, the Company adopts "mentoring" system and conducts "apprenticeship" training; organizes preparation of key products troubleshooting manual, which classifies trouble patterns in detail, analyzes and sets 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 conducted appraisal on the level and qualification of internal service skills with a view to continuously enhance the professional skill level of service staff.



## 3. Customer Satisfaction Survey and Customer Complaints

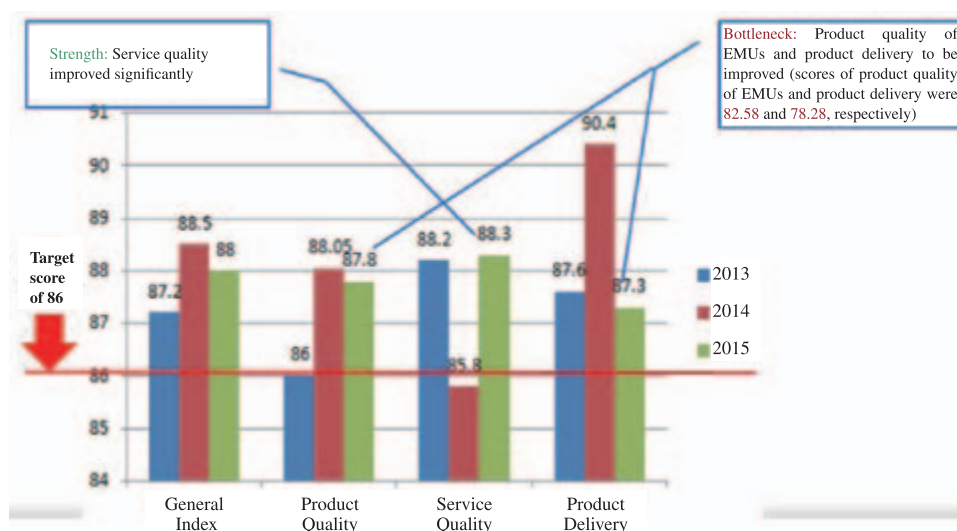
### 3.1 Customer Satisfaction

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.

## Part II Technological Innovation and Product Liability

The general principle for 2015 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.

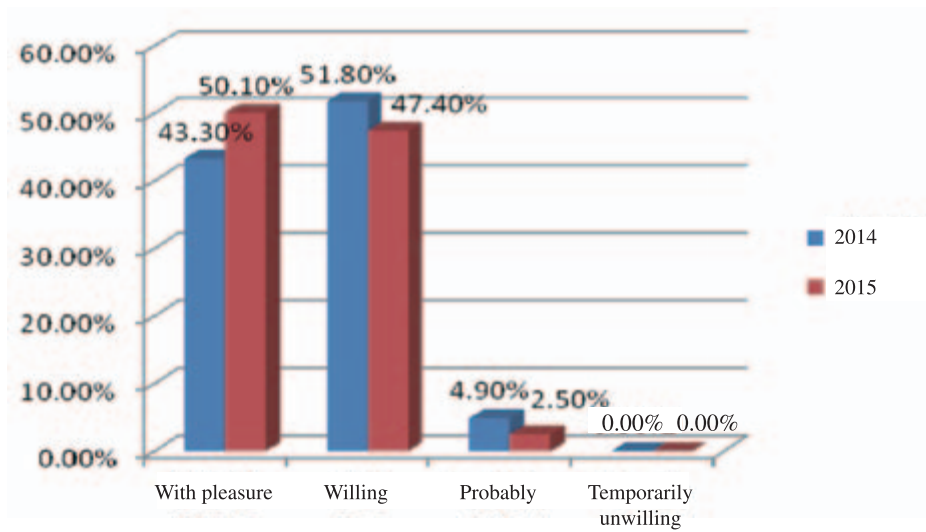
Scores in Customer Satisfaction Survey in Recent Two Years



### 3.2 Customer Loyalty

Customer loyalty improved slightly from 95.1% in 2014 to 97.4% in 2015. None of the customers selected “temporarily unwilling” to use the Company's products, and 2.5% of the customers selected “probably” will continue to use the Company's products.

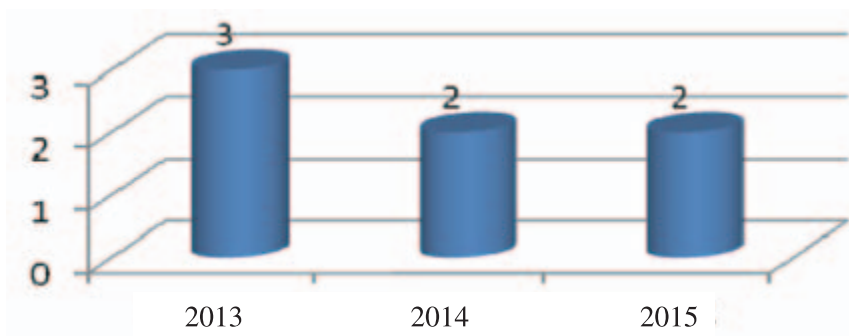
## Part II Technological Innovation and Product Liability



### 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.

Statistics of Customer Complaints in Recent Three Years



## Part II Technological Innovation and Product Liability

### 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. With the efforts of all staff, there was no product quality and safety incident in 2015.

#### 4.1 Guarantee of Product Safety (Reliability)

★ **Overall Promotion of Quality Safety Risk Management.** In 2012, the Company established quality safety working team, organized special training and perfected its risk management and control system. The Company formulated and steadily advanced its annual special working plan, completed risk source identification and compiled a list of risk sources. The Company also focused on the promotion of RAMS and implemented quality safety risk management at product design sources.

★ **Deepen the Application of Rail Transit RAMS and LCC.** The implementation of the special project of Rail Transit RAMS and LCC Application has perfected and optimized the RAMS/LCC management procedure. Four pilot projects, namely Georgia EMUs project, Wuxi subway project, network platform product DTECS-2 and TPX21C displayer, have been identified. The Company has established the operation instructions and modules for RAMS design, RAMS testing verification, RAMS manufacturing and RAMS maintenance of the pilot projects, and the sample documents were also prepared correspondingly.

★ **Develop Special Work for Technical Research and Management Upgrade of Key Materials.** By making full use of the expert resources and extensively collecting design resources, the Company has developed special work for "five equipment". It has also deeply implemented technical certification and established standard procedures for material technical certification. On the basis of this opportunity, the Company perfected its technical specification, developed technical researches for 6 key materials such as power capacitor; improved all the key procedures of technical certification, strengthened material testing verification, management and control of key technologies and established a complete tracking mechanism from material selection to mass production application. Meanwhile, the Company also enhanced the using conditions, indexes, parameters etc. in the technical specification, and strengthened requirements on material application from design, technologies, testing and quality, etc.

## Part II Technological Innovation and Product Liability

### 4.2 Product Certification

In 2015, the Company has passed the CRCC certification for a total of 13 key categories of railway products:

No.	Types of Product	Model &		Issuing Date	Issuing Agency
		Quantity	Certificate No.		
1	07 Electronic components for railway vehicles	2	CRCC10213P10959R1L-4	2015/11/2	China Railway Test & Certification Centre
			CRCC10213P10959R1L-4	2015/11/2	China Railway Test & Certification Centre
2	07 Electronic components for railway vehicles	2	CRCC10213P10959R1L-5	2015/11/2	China Railway Test & Certification Centre
			CRCC10213P10959R1L-5	2015/11/2	China Railway Test & Certification Centre
3	Electric devices for railway EMUs	3	CRCC10214P10959R1L-11	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-11	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-11	2015/6/2	China Railway Test & Certification Centre
4	Electric devices for railway EMUs	5	CRCC10214P10959R1L-12	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-12	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-12	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-12	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-12	2015/6/2	China Railway Test & Certification Centre
5	Electric devices for railway EMUs	4	CRCC10214P10959R1L-14	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-14	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-14	2015/6/2	China Railway Test & Certification Centre
			CRCC10214P10959R1L-14	2015/6/2	China Railway Test & Certification Centre

## Part II Technological Innovation and Product Liability

No.	Types of Product	Model & Quantity	Certificate No.	Issuing Date	Issuing Agency
6	Electric devices for railway EMUs	1	CRCC10214P10959R1L-15	2015/6/2	China Railway Test & Certification Centre
7	Electric devices for railway EMUs	4	CRCC10215P11779R0L_2	2015/5/20	China Railway Test & Certification Centre
			CRCC10215P11779R0L_2	2015/5/20	China Railway Test & Certification Centre
			CRCC10215P11779R0L_2	2015/5/20	China Railway Test & Certification Centre
			CRCC10215P11779R0L_2	2015/5/20	China Railway Test & Certification Centre
8	Electric devices for railway electric multiple units	1	CRCC10214P10959R1L-14	2015/6/2	China Railway Test & Certification Centre
9	Electric devices for railway EMUs	1	CRCC10214P10959R1L-12	2015/6/2	China Railway Test & Certification Centre
10	Electric devices for railway EMUs	1	CRCC10214P10959R1L-11	2015/6/2	China Railway Test & Certification Centre
11	Electric devices for railway EMUs	1	CRCC10214P10959R1L-15	2015/6/2	China Railway Test & Certification Centre
12	05 Electric devices for railway locomotives	7	CRCC10215P10959R1L-22	2015/3/19	China Railway Test & Certification Centre
			CRCC10215P10959R1L-22	2015/3/19	China Railway Test & Certification Centre
			CRCC10215P10959R1L-22	2015/3/19	China Railway Test & Certification Centre
			CRCC10215P10959R1L-22	2015/3/19	China Railway Test & Certification Centre
			CRCC10215P10959R1L-22	2015/3/19	China Railway Test & Certification Centre
			CRCC10215P10959R1L-22	2015/3/19	China Railway Test & Certification Centre

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## Part II Technological Innovation and Product Liability

No.	Types of Product	Model & Quantity	Certificate No.	Issuing Date	Issuing Agency
13	05 Electric devices for railway locomotives	6	CRCC10215P10959R1L-23	2015/3/31	China Railway Test & Certification Centre
			CRCC10215P10959R1L-23	2015/3/31	China Railway Test & Certification Centre
			CRCC10215P10959R1L-23	2015/3/31	China Railway Test & Certification Centre
			CRCC10215P10959R1L-23	2015/3/31	China Railway Test & Certification Centre
			CRCC10215P10959R1L-23	2015/3/31	China Railway Test & Certification Centre
			CRCC10215P10959R1L-23	2015/3/31	China Railway Test & Certification Centre

### 4.3 Improved Test and Verification System

#### ☆ Approval and Authorization

The Company successively invested and constructed testing labs with qualification of national level and provincial level, 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)
- Certified collaborative lab for TUV Rheinland Group
- Traction and Control of EMU and Locomotive of National Key Lab



## Part II Technological Innovation and Product Liability

### ☆ Inspection and Testing Capability

#### RAMS lab:

RAMS lab is equipped with testing equipment such as 260m<sup>3</sup> environment test chamber, 60 m<sup>3</sup> walk-in test chamber for high-low temperature thermal & humidity, rain and dust, 5 m<sup>3</sup> salt spray test chamber, 2.7 m<sup>3</sup> test chamber for rapid temperature variation, thermal shock test chamber, a three-way combined test system (6m<sup>3</sup> rapid temperature variation + vibration generator with rated thrust of 6t) and vibration test system (20t, 12t, 3t). It may be able to complete large electric railway equipment's compatibility test on climatic environment and mechanical environment according to the required standard.



Walk-in Rain Test Chamber

Walk-in Dust Test Chamber

System-level Product Vibration Test

### ☆ Electronic Device Lab:


Relying on RAMS test and EMC test, the electronic device lab can undertake functional research and qualification test of whole set of electronic devices (such as microcomputer control cabinet, drive control unit, train running monitoring and recording device, electric measuring transducer, electric measuring indicator etc.) for track transit concerning all control, regulation, protection, power supply etc.




High-low Temperature Thermal & Humidity Test Chamber

**Passenger Train  
Electrical  
System Laboratory**


*It uses corresponding power supply, load measurement and control system to build all types of trunk passenger train electrical system, locomotive auxiliary system for CRH etc. to establish 1:1 system test platform.*




AC Converter test system



DC Converter test system



Small power supply test system



Module and drive test system

☆ **EMC Lab:**

In EMC lab, the testing frequency of EMI system is up to 18 GHz, and the testing frequency of EMS system is up to 8 GHz, fully covering 3G fields. The testing capability of EMC lab once again plays a leading role in the industry.



# Part III

## Environmental Protection

### I. Environmental Protection Policy

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

### II. Environmental Protection Performance Management Data

#### 1. Discharge of Industrial Solid Waste and Hazardous Waste

Year	Waste with			Total (tons)
	Organic waste (tons)	Copper Content (tons)	Others (tons)	
Hazardous Waste in 2013	35	50	12	97
Hazardous Waste in 2014	37	89	20	146
Hazardous Waste in 2015	60	160	40	260

Our Company collects and stores solid wastes separately in the same manner as general industrial solid wastes and hazardous wastes. Our Company will first consider recycling the general industrial solid wastes to the greatest extent. Unrecyclable general industrial solid wastes will then be sent to qualified units for hazard-free disposal; while 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. Approval will be obtained before transfer of hazardous wastes; and hazardous waste transfer sheet will be completed and reported to Zhuzhou Environmental Protection Bureau for record upon transfer. With the increase in production scale of the Semi-conductor Business Department of the Company, the quantity of waste organic solvent and other hazardous wastes increased considerably. In 2015, following the closure of PCB business, the quantity of residual hazardous waste with copper content increased substantially as well. During 2015, the Company generated a total of 260 tons of hazardous wastes in the process of production, all of which were sent to the relevant units responsible for hazardous waste treatment for disposal. A qualified treatment rate of 100% was achieved.

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## Part III Environmental Protection

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

Year	Volume of waste water discharged (ten thousand tons)	Volume of waste water treated (ten thousand tons)	Ratio of waste water in compliance with discharge standard
2013	40	40	100%
2014	41	41	100%
2015	36	36	100%

In 2015, the Company strictly followed the relevant national laws and regulations to manage its sewage treatment stations and exhaust gas treatment facilities. All pollutant discharge data, supervised and monitored by monitoring authorities and government environmental protection administration entrusted by the Company, conformed to the requirements of the relevant laws and regulations. No environmental illegality or environmental pollution incidents were recorded. The PCB business of the Company was shut down on 30 June, 2015 and the discharge volume of industrial waste water decreased to a certain extent. In 2015, the Company generated approximately 360,000 tons of industrial waste water and the volume of waste water treated by sewage treatment station in compliance with discharge standard amounted to 360,000 tons. A treatment rate of 100% was achieved.

### 3. Quantity of Pollutants Discharged

Category	Pollutants	Quantity discharged	Ratio of pollutants in compliance with discharge standard
Waste water	COD	24 tons	100%
	Ammonia and nitrogen	1.8 tons	100%
Exhaust gas	Carbon dioxide	5,700 tons	/

The waste water generated by the Company is chiefly derived from the production of waste water, all of which were treated with our environmental protection facilities before discharge in compliance with discharge standard. In 2015, the Company discharged 24 tons of COD and 1.8 tons of ammonia and nitrogen respectively. The combustion of natural gas in the natural gas boilers of the Company results in CO<sub>2</sub> emission. In 2015, the Company consumed 3.04 million m<sup>3</sup> of natural gas and generated approximately 5,700 tons of carbon dioxide.

### 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 October 2015, the Company passed the review of British Standards Institution (BSI) Company for its ISO14001 environmental management system certification, and shut down some of the facilities to rectify the four environmental protection problems discovered during the review pursuant to the relevant requirements.



ISO 14001 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 CRR’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. Environmental Compliance Description

During project construction, the Company actively carried out its construction work by adopting the “Three Simultaneity” policy 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 statues, 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.

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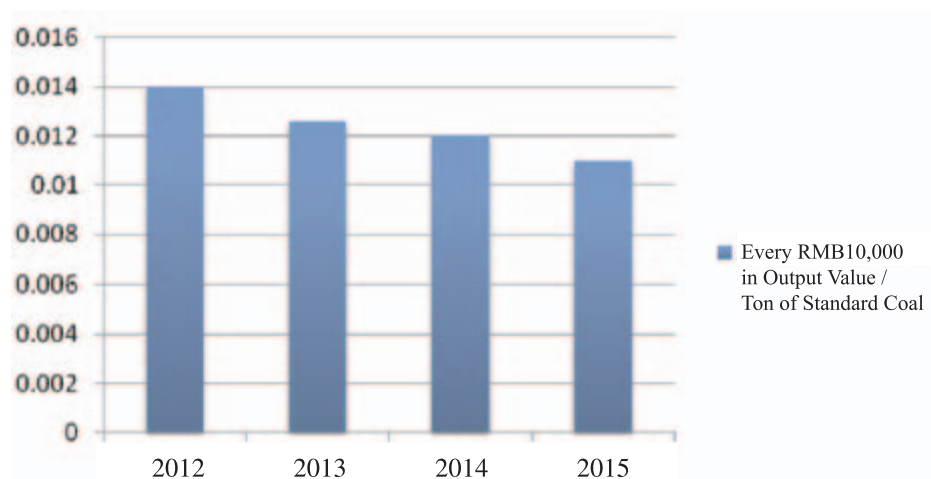


### V. Energy Saving, Consumption Reduction and Comprehensive Governance

#### 1. Energy Saving and Consumption Reduction

The Company upheld the vision of “Providing the community with safe and convenient essential electric 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 2015, the Company implemented various energy saving policies and recognized the comprehensive energy consumption for every RMB10,000 in output value at 0.011 tons of standard coal per RMB10,000, representing a decrease of 8% over the previous year.

**Comprehensive Energy Consumption for Every RMB10,000 in Output Value**



### 1.1 Energy Saving Products

The Company has always been insisting on independent innovation and has developed and trained a technical team with profound expertise, strong technological capabilities and stability. Through the application of “Four New” Techniques, the Company focused on the application of energy-saving technologies from the sources and applied such energy-saving technologies to product design. Against the backdrop of intensifying energy shortage in China and the urgent demand of the society for “green transport”, the technological design created by application of energy saving technologies from the sources was a typical example of the Company’s achievement regarding technological upgrade for national high-speed railway. The examples of energy-saving technologies application in product design of the Company in 2015 are as follows:

1. Energy feedback system of metro. It is a system which can absorb and utilize the energy generated during the process of driving and braking of the urban railway train. This application has been included in the Catalogue of National Key Energy-saving Technologies issued by the National Development and Reform Commission (the “NDRC”);
2. Permanent magnet traction system. It is a new generation of traction and drive system featuring permanent magnet synchronous motors as its core. The system represents a revolutionary innovation of rail traction technology, which is able to reduce energy consumption by 20% and is renowned as the “Magical Tool for Energy Saving”;
3. High performance direct drive system with central air-conditioning, permanent magnet and frequency conversion functions. This system provides a strong “core” for the permanent magnet centrifuge units with synchronous frequency conversion functions, which enables the central air-conditioning system of Gree to save energy of over 40%;
4. Intelligent photovoltaic power supply. This system is a distributed photovoltaic power generation system featured with the advantages of multi-string MPPT power generation and low construction cost of the overall system, therefore can help to reduce the costs of products using new energy;





### 1.2 Energy Efficiency and Technological Reform

The Company has carried out energy efficiency and technological reform with a view to improve the utilization rate of energy resources. The Company has realized four technological reform projects through injection of capitals, including:

1. Energy efficiency for product testing techniques. Energy feedback from product testing was achieved through the drive system test platform, thus saving electricity consumption of 75%;
2. Energy efficiency reform for air-conditioning system. Two aged and outdated boilers with heating function and two steam lithium bromide central air-conditioning units have been eliminated and were replaced by natural gas lithium bromide central air-conditioning units, thus saving 35% of energy;
3. Intelligent optimization of power supply. The air supply and return system as well as the air-conditioning system of Semi-conductor Business Department in Industrial Zone of the Company were installed with intelligent and optimized management system, thus saving 20% of energy during the year;
4. Upgrade of LED lighting facilities. The Company continued to upgrade its LED lighting facilities according to the Green Lighting Program of the Company. In 2015, the Company completed the upgrade of LED lighting facilities of all streetlights and logistics warehouses in the Headquarter as well as those of the Communications Signals Division.

## Part III Environmental Protection

Through years of efforts in energy efficiency reform, the Company has managed to achieve “Increase in production volume without increase in energy consumption, Expansion of business without expansion of production capacity and Increase in energy supply through energy saving”, which has reduced energy consumption from the sources, thereby achieving its goal of energy saving and emission reduction. Meanwhile, the Company’s energy efficiency reform projects received energy saving subsidies of RMB6 million under the 2015 Central Investment Project for Resources Conservation and Environmental Protection of the NDRC.



**Upgrade of boilers and air-conditioning systems**

### **1.3 Energy Saving Management**

The entire process of energy saving management was safeguarded with systems and organizations through the Company’s efforts in nurturing first-class employees, enhancing their awareness of energy saving and reinforcing its energy management on the fundamental basis. By adhering to the *Rules for Assessment of Energy Management Objective*, the Company strictly controlled the energy consumption targets of each unit and reinforced its energy management on the fundamental basis, aiming to implement energy saving management and impose penalty for waste of energy. The Company also strengthened its management of power supply equipment and organized trainings regarding standardized operation, safe production and energy-saving operation techniques for operators of power supply equipment of the Company, with a view to perfect the team-building for the related working groups. Through these efforts, the Company has trained up its staff members and nurtured a well-trained power supply team with high proficiency and equipped with standardized operational skills, which has thus ensured the effectiveness of energy-saving measures. Besides, the Company introduced two natural gas suppliers in 2015, which has improved its service quality, ensured the reliability of energy supply and saved 470,000 cubic meters of natural gas during the year.



## Part III Environmental Protection

In view of the rapid development of the Company, it is a consensus of the Company to choose environmentally-friendly and energy-saving production method, promote the application of energy saving in product design and actively commence energy saving management, which is also the development direction that the Company has been working on and shouldering the responsibilities therewith. Meanwhile, the Company takes the fulfilment of social responsibility as an integral part of its corporate development strategies as well as operation and management, thereby realizing the overall coordination and sustainable development of both the Company and the society.



**Introduction of two natural gas suppliers**



**Enhanced team-building efforts and trainings for working groups of power supply**

### 2. Social Management and Comprehensive Governance

In 2015, the Company focused its efforts on the achievement of its annual major objectives regarding production and operation for its social management and comprehensive governance by adhering to the management model of “Sound organizational structure, Clearly-defined duties and authorities, Perfected system development, Hierarchical management and control, Timely rectification of potential risks, Sufficient prevention and safety measures, Implementation of reward and punishment system”, so as to continuously deepen and improve its comprehensive governance and safety management. The Company also continued to establish a solid foundation for its comprehensive governance and safety management with “Four Protections” and “Four Nos” as its major objectives, which has provided assurance and realized the Company’s overall goal of “No serious fire accident, No major criminal case related to public order, No major incident concerning foreign affairs, No major mass disturbance” at all levels, thereby laying a solid foundation for safety protection to ensure the rapid, healthy and sustainable development of the Company.

### 2.1 Establishment of Multi-level Organizational Structure to Promote Goal-oriented Accountability System

The establishment of organizational structure for social management and comprehensive governance provided a foundation and support for the implementation of comprehensive governance during the year. Based on the working requirements of the comprehensive governance committee of higher level and the actual circumstances, the Company timely adjusted and issued documents on its organizational bodies for comprehensive governance, further clarifying the working policies and principles for comprehensive governance, internal security and fire services of “Person-in-charge is the Responsible Person, One Position with Dual Responsibility, Party and Government Share the Same Responsibility” and “Safety and Prevention First, Accountability at the Unit, Highlighting Focuses, Assurance of Safety” as well as “Safety and Prevention First with Combination of Preventive Measures and Fire Services”. In order to enhance working efficiency, the Company and the operation management department jointly organized the Summary Work Meeting for Safe Production and Comprehensive Governance and executed 20 annual *Responsibility Commitments on Comprehensive Governance* with the respective units. Meanwhile, the Company also urged various major units to closely integrate their comprehensive governance safety management with production safety management, with identified accountability of each level from departments (business departments) to divisions and working groups. During the year, a total of over 100 *Responsibility Commitments on Comprehensive Governance* have been executed at different levels.

At the same time, based on the new features of comprehensive governance work, i.e. the current complicated condition and numerous hot topics and difficult problems, the Company formulated the *Annual Major Work Plan for Comprehensive Governance and Safety Management* in a scientific and reasonable manner, and revised a series of other documents, rules and regulations, including *Responsibility Commitments on Comprehensive Governance Objectives and Management*, *Assessment Rules for Objectives and Tasks of Comprehensive Governance and Safety Management of the Company* and *Administrative Measures on Assessment of Objectives and Management of Comprehensive Governance*, etc. in accordance with the five major work contents and working requirements of “Establishment of Organizational Structure, Fire Services Safety Management, National Security Management, Road Safety Management, Comprehensive Governance Safety Management”. All of which would help to further strengthen the Company's work in relation to its objectives and tasks, and realize the implementation of accountability system, balance of duties and authorities, establishment of clear principles for as well as realization of reward and punishment, thereby comprehensively and continuously promote and enhance the level of comprehensive governance and safety management of the Company, deepen the development of a multi-level management accountability control system on an on-going basis, which will in turn continue to solidify and improve the foundation for comprehensive governance.

### 2.2 Continuous Improvement in “Four Protections” Development with Rising Professional Management Standard

The Company focused its efforts on the achievement of its annual major tasks and formulated the *Annual Major Work Plan for Comprehensive Governance of the Company* in a scientific, reasonable and highly practical manner by carefully analyzing and summarizing the deficiencies in the related work. Taking into account the characteristics of internal safety and security work, the Company also prepared the *Annual and Monthly Major Work Plan for Security Working Groups*, principally setting out the milestone targets, time of fulfilment, assessment standards and person-in-charge, so that a management model is in place to maintain records of work done, laid down standards for assessment and identify accountability of personnel, which has helped to enhance working efficiencies on an on-going basis and strive to establish an efficient and organized “Four-in-One” internal comprehensive governance management and operation system, featuring “Personnel Protection, Physical Protection, Technology Protection and System Protection”.

1. *Development of Personnel Protection: Reinforced efforts on building of management team and security team, with a view to enhance the comprehensive safety and security processing capability*
  - (1) Taking the opportunities brought by the publicity of various regulations, including the new *Fire Control Law*, *Safety Law* and *Counterespionage Law*, etc., the Company strengthened its trainings on comprehensive governance and safety for legal representatives, assistant general managers, persons-in-charge and specific managers of various units, covering topics such as comprehensive governance and fire services safety management. These trainings have helped to raise the awareness of leaders from all levels about their responsibilities towards comprehensive governance and safety management, thereby assuring the continuous development of the Company’s comprehensive governance and safety management at the leader level.
  - (2) After taking into account the requirements of the equipment department of higher level, and capitalizing on the opportunities from the annual Militia Reorganization, the Company adhered to the principle of “High Political Awareness, Physically Healthy and Voluntarily Basis” to establish an emergency response team for handling emergencies of the Company. The team, comprised of 40 members who were mainly frontline employees, engineering technicians and management officers, will provide organizational and personnel support under emergencies.



## Part III Environmental Protection

- (3) By upholding and strictly following the “military” management standards and aiming at becoming “Ready to Fight and Capable of Winning”, the Company established a highly professional team for internal safety and security with strong processing capability and ability to provide quick response. Meanwhile, based on the *Assessment Rules for Security Works*, the Company insisted on integrating monthly assessment with special assessment and effectively enhanced the management over its internal safety and security personnel. During the year, the Company issued over 10 assessment reports and granted special awards of over RMB10,000, effectively ensuring the stability of the security team.
- (4) The Company strengthened the horizontal exchange and learning of its comprehensive governance and safety management personnel through various means, including monthly inspection, quarterly comprehensive governance inspection and review of administrative measures, so as to increase the sense of responsibility and urgency of the management, and thus continue to enhance the level of professional standard and standardization as well as processing capability of the comprehensive governance and safety team.
- (5) The Company took the opportunity of the construction of fire service control room of Zhuzhou City in compliance with the required standard to continue to promote the standardized development of the control room. It also required strict compliance with certified discharge of job duties by its personnel, thereby ensuring safe and effective operation of all fire services facilities and equipment. During the year, a total of 8 personnel have completed their certified trainings, and attained a compliance rate of 100%.

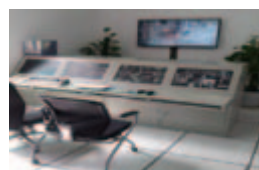


2. *Development of Technology Protection: Fixing of management loopholes and enhancement of prevention and control capability by focusing on key areas:*

Based on the organizational changes of the Company and in accordance with the requirements of “Enhance Safety System and Focus on Safety Work with Integration of Key Areas and Regions”, the Company timely adjusted the layout and added new points of “CCTV monitoring”, so that while strengthening its planning and development of technology protection facilities, the Company may also strengthen its control over “key areas” and “regions”, minimize management loopholes and dead angles, and continue to push forward the development of its monitoring system of “Central Monitoring Information Centre-Key Buildings-On-site”. The Company completed various construction projects during the year, including the addition of a new infrared alarm system for logistic warehouse, maintenance of facilities at Tianxin Industrial Zone, replacement of security cameras, addition of new cameras for after-sales services warehouse, upgrade of facilities for the living community, etc.. The Company also acquired two sets of new CCTV monitoring system with over 100 detection points. The total costs of such projects amounted to about RMB1,000,000.



**CCTV Monitoring Control Room  
for the production area**



**CCTV Monitoring Control Room  
for the office area**

By focusing on the enhancement of the “inherent safety level” of the buildings, the Company organized and implemented rectification measures for one of its loopholes, namely “Non-compliance with the fire services safety rules as a result of change of functions of buildings”, so as to ensure the use of buildings is basically in compliance with the relevant national regulations and requirements, and continue to enhance the management and control ability of automatic fire prevention of buildings, at the same time ensure the personal safety of the workers and the implementation of the “Three Simultaneity” policy for fire services safety management. For instance, the Company has organized and completed the upgrade of fire safety facilities for its Electrical & Electronic Building.

## Part III Environmental Protection

### 3. *Development of Physical Protection: Fixing of loopholes to enhance the prevention ability of frontline departments:*

Building on the basis of personnel protection, the Company further established and improved the development of physical protection to achieve all-rounded safety monitoring and control in various aspects. The Company organized and completed the facility supported safety management by integrating door identification, security door and monitoring cameras. It also provided maintenance and acquired a batch of new standard identification (such as emergency lights, safety exit signs and evacuation signal lights) and over 200 gas masks, and timely replaced a total of over 1,000 fire apparatus. Total cost amounted to about over RMB100,000. Among which, 7 units/sets of fingerprint access control locks have been installed for labs involving confidential technology. Currently, all financial offices and cashiers' offices of the Company have been installed with security door. Through these facility supported safety management of physical protection, the Company was able to exercise all-rounded control over its internal security and enhanced its management and control ability.



**Acquisition of security patrol checkpoint reader equipment**



#### 4. *Development of System Protection: Continue to enhance the level of normalized and standardized development*

With the continuous deepening of reform and development as well as accelerated internationalization of the Company, in order to enhance comprehensive governance and safety management, at the same time convey the relevant documents and requirements of the authorities of higher level in a timely manner, the Company has improved series of documents and working procedures regarding management system by focusing on prevention of fire, theft, accident and damage as well as response to emergency situations. These documents and working procedures include *Administrative Measures for Social Management and Comprehensive Governance*, *Administrative Measures for National Security*, *Administrative Measures for Fire Safety*, *Administrative Measures for Maintenance of Fire Safety Facilities for Buildings*, *Management Procedures for Safe Operation with Use of Fire*, all of which have enabled the Company to gradually normalize, standardize and formalize its comprehensive governance and safety management and continue to develop on the right track, thereby establishing a new “regulatory” system for internal safety precaution, management and control.

### **2.3 Diligently Fulfill its Responsibility, Minimize Management Loopholes and Hidden Safety Risks**

#### 1. *Special project management: Promote continuous enhancement of the overall comprehensive governance and comprehensive management standards of the Company and continuous consolidation of internal safety and stability by carrying out regular special projects with a focus on “Establishment of Safety Units (Parks)”*

(1) Integrating the characteristics and main focuses of the safety precaution work for the long holidays during Chinese New Year and based on its previous experience, the Company focused on the “Establishment of Safety Projects” and adhered to the *Responsibility Commitments on Safety Management Objective* for the promotion of its work in relation to special internal security projects such as “Safe Chinese New Year” and “Safe National Day”. As such, a long-acting working system was established, which has lower the accident rate of internal security in various aspects and thus ensured the internal safety and stability of the units. Meanwhile, the Company also strengthened its efforts in developing various abilities of the entrusted management party for internal security, and continued to enhance the responsiveness of the security team to emergency situations.

- (2) While finalizing and improving the *Security Plan* on an on-going basis, the Company also completed various work in relation to on-site safety protection and diligence services, including visit, study, investigation and guidance to the Company by leaders of various levels. Besides, the Company revised the *Special Plan for Anti-Terrorism* to ensure safe and smooth operation of different major reception events. During the year, the Company completed a total of over 400 receptions of various types, among which Class-A receptions were over 70 and major receptions amounted to 3.
- (3) Various special safety management works, such as *Special Management for Safety Management of Warehouses, Prevention of Fire, Theft and Damage during Summer and High Temperature Days*, were organized and conducted in a timely manner in accordance with the requirements of the superior departments and local authorities, effectively pushing forward the continuous enhancement of the Company's safety management standard.
- (4) The Company has commenced various works on special project management, including public order management, rationalization of management measures and procedures under new organizational structure, safety production inspection, fire services and comprehensive governance safety management for major construction projects.

### 2. *Supervision and Inspection*

The Company adopted various forms of inspection, such as regular or random inspection, combination of daily and special inspection, as well as self-check and cross-inspection. Focusing on the major weakness as the core of safety precaution, the Company continued to step up its efforts in inspection of comprehensive governance and safety management of each unit and performed its monitoring and supervision duties regarding comprehensive governance and safety management diligently. Meanwhile, the Company established a comprehensive governance intelligence and information network with the security management personnel of Times Property as correspondents, so that information regarding internal safety and stability of the units can be acknowledged and acquired in a timely manner to achieve "Early Acknowledgement, Early Response and Early Treatment".

In order to acknowledge and acquire information regarding the internal comprehensive governance and safety of each unit thoroughly, promptly and accurately, the Company consistently implemented the “Work Mechanism of Monthly Regular Reporting for Comprehensive Governance”, further strengthened its “Awareness of Accountability for Major Units” and enhanced the overall level of control for comprehensive governance and safety management, thereby providing scientific, reasonable and reliable information for the subsequent formulation and implementation of comprehensive governance work. During the year, the Company completed a total of over 10 safety inspections of various types, issued over 10 inspection reports, and identified a total of 95 existing hidden safety risks and issues. The rectification rate of hidden risks reached 94%.

### 3. *National Security Management*

- (1) Based on the requirements of provincial and municipal national security authorities and Bureau of Exit and Entry Administration of the Ministry of Public Security, and the guidance of the CRRC ZELRI, the Company promptly conveyed the requirements of the superior authorities and at the same time complied with the development requirement of “Effectiveness in Terms of Organization, System, Task and Protection” to complete the adjustment of the Company’s organizational bodies for national security and management in a timely manner, so as to continuously promote the Company’s development in respect of national security management through “entities”. The Company also established the management approach of “Review and Approval of Registration for Travelling Abroad” with leaders and cadres, senior engineering technicians and staff of special posts as key control personnel, aiming to strengthen the control over important stages such as review, approval, education and reporting of “Registered Personnel” travelling abroad and to prevent the occurrence of major national security incidents such as overstaying, conspiracy, leakage of classified information, etc. The Company had completed the application for registration of 376 specific employees and 15 registered personnel for business purposes.
- (2) The Company continued to strengthen its review on ad hoc tasks and personnel that require to travel abroad by focusing on providing “Safety Training” to the personnel before they travel abroad, so as to reinforce their “Awareness and Prevention Capabilities for National Security” and prevent any travelling without going through all proper procedures and thus safeguard the prospering overseas business of the Company. During the year, about over 1,000 sets of “Guidelines for Personnel Travelling Abroad” were executed.

- (3) The Company actively coordinated with local departments to commence fundamental investigation and research. Based on the requirements of national security authorities from three levels (provincial, municipal and regional) and in accordance with the regulations for personnel travelling abroad, overseas visitors and overseas organizations and institutions, the Company had timely completed over 1,000 sets of statistical data of various types regarding personnel of the Company travelling abroad, overseas organizations and institutions and reception of overseas visitor since 2000.
- (4) The Company effectively strengthened the management on overseas visitors. Based on the relevant national requirements as well as the guidance and assistance of the national security authority of Zhuzhou City, the Company had completed over 50 foreign-related receptions, including Dynex from the United Kingdom, BOGE from Germany, African visiting tours, Latin-America High-Speed Rail Development Forum, during which it has ensured the personal safety of the visitors without any incidents (cases) involving leakage of classified information.

#### 4. Road Safety Management

In 2015, the Company did not have any major traffic accident.

- (1) At the beginning of the year, the Company organized and convened a work meeting with over 10 management personnel from the road safety management department of each unit. During the meeting, documents such as *Special Tasks for Road and Transport Safety during Chinese Spring Festival Travel Rush* and working guidelines from the superior departments and local governments were conveyed, with a view to enhance the awareness of responsibility for road and transport safety.
- (2) The Company completed the statistics on the public and privately-owned vehicles of the Company and prepared the *Information Form of Key Vehicles and Drivers*. It also continued to enhance the management account for road safety and implemented round-the-clock dynamic management to keep track of the situation.
- (3) Pursuant to the requirements of provincial and municipal road and transport management department, the Company issued a document titled *Work Plan for Over-Limit and Over-Loading Freight Vehicles* in a timely manner, which has effectively guided and coordinated the services and works in relation to registration and management of "Three Overs", thereby ensuring road and transport safety. Units such as new materials unit and wind power business unit have organized and implemented the relevant works according to the requirements of the above document.

## Part III Environmental Protection

- (4) Pursuant to the requirements of relevant department of the government of Zhuzhou City, the Company organized a special project named *Investigation and Research on the Bus Routes and Plan for Construction of Bus Stations in Tianxin Industrial Zone* by means of sending friendly reminders and deploying assistance from municipal-level demonstration operation companies. With the active coordination with superior departments, the bus company added a bus route for Hexi Liyu Industrial Zone, which has helped solving our employees' difficulties in taking buses during rush hours for work effectively.
- (5) The Company continued to strengthen the safety management of staff shuttle bus and student shuttle bus. Such works included formulation of inspection and training plans, conducting emergency drilling exercises, recruitment of "Volunteer Supervisors", provision of guidance to the staff on the proper use of fire extinguisher and life hammer, compliance with the development of "Personnel Protection, Physical Protection, Technology Protection and System Protection" such as passenger rules, pay when you get on the bus, posting safety labels, etc., so as to ensure safe operation of the vehicles. Currently, the Company has 31 shuttle buses and there was no accident in relation to the road and transport safety of these buses.

## Part III Environmental Protection

### 5. Training and Education

The Company has enhanced its professional management standards by adjusting the training methods. With an aim to enhance the overall comprehensive governance and management ability, the Company has prepared various general PPT training materials, including *Comprehensive Governance and Safety Management*, *Fire Service Safety Management* and *National Security Management*. By means of professional manager training, on-site safety inspection and utilization of OA network, the Company timely conducted comprehensive governance and safety trainings with friendly reminders on safety management, which has strengthened the accountability and awareness on comprehensive governance of staff from various levels, including responsible persons, persons-in-charge, management staff and employees. Through trainings and simulation drilling exercises, the self-protection and self-help abilities of all staff were enhanced. The Company strived to promote these trainings from key areas to all regions, with an aim to make all staff of the Company acknowledge and keep in mind that everyone should participate in and hold responsibility towards fire services.



### 2.4 Establishment of Emergency Response System

1. While continuously refining the development of special emergency plan, the Company also took into account the current level of social security protection and the actual circumstances of the Company to establish an anti-terrorism and stabilization working mechanism that links the emergency scenes, all units, competent management departments, superior authorities/departments and relevant local departments.

2. The Company continued to refine the development of its overall emergency management system by further clarifying job duties, refining the special contingency plans for anti-terrorism and stabilization and acquiring emergency response and prevention equipment. The Company also held regular and random skills training by adopting the methodology of “Attract Talents and Go Global” and integrating it with both internal and external trainings, thereby continuously strengthening the sense of “Safety and Services” and emergency response ability of the team members of the emergency response team and security team, which has in turn ensured the normal, orderly, healthy and sustainable development of the Company’s scientific research, production and normal operation.
3. The Company continued to step up its efforts in the guidance, inspection and assessment of the safety and security services provided by Times Property Company, the entrusted management party for internal security and safety management. The Company focused on the supervision on various aspects, including staff recruitment, pre-job training, their service image and ability to perform their duties, which has resulted in continuous enhancement of both the emergency response ability of the security team and the overall security forces, laying a solid foundation to guarantee the safety development of the Company.

### 2.5 Formulation of Improvement Plans

Upholding the principle of “Person-in-charge is the Responsible Person”, “Safety and Prevention First with Comprehensive Governance” and taking the annual key work of the Company as its goal, the Company will make consistent efforts in solidifying its comprehensive governance and safety foundation and pushing forward its safety development without compromising its commitment to the *Responsibility Objectives for Comprehensive Governance*. It will also step up its efforts in supervision and inspection, and strictly implement the “hierarchical” management system and “one-vote veto” system, so as to prevent serious fire accident, major criminal case related to public order, major incident concerning foreign affairs, major mass disturbance, etc., thereby ensuring the continuous development of the scientific research and production of the Company. Specific details are as follows:

1. Taking the special projects on prevention of fire, theft, damage and flood in summer as an opportunity, the Company will strive to eliminate loopholes and dead ends of comprehensive governance and safety management to enhance the overall comprehensive governance and safety precaution ability of the Company.

## Part III Environmental Protection

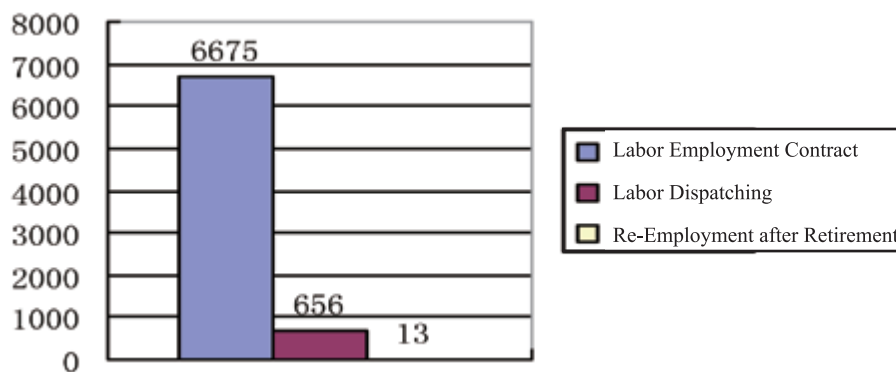
2. The Company will step up its efforts in the supervision, inspection and assessment of comprehensive governance and safety of each unit, consistently implement regulations including multi-level management accountability system and monthly comprehensive governance reporting system, thereby allowing the Company to collect information on comprehensive governance and safety and give feedback in a timely manner, which will be of great value as a reference to the Company.
3. The Company will give full play to the functions of each department under the guidance of "Prevention Comes First and Aiming to Tackle Both the Problem and its Cause", with a view to promote the work mechanism of "Joint Operation, Joint Inspection, Joint Assessment" and strengthen its efforts on the rectification of hidden risks.
4. The Company will continue to strengthen its supervision, inspection, assessment of the safety and security work of the entrusting party regarding property management, so as to ensure stable and healthy development of the safety and security team and to safeguard the internal safety and stability as well as benefits of the Company.
5. The Company will further enhance the emergency awareness and emergency response ability of all staff. Meanwhile, it will also supervise and urge various major units to organize emergency drilling exercises, so as to continuously strengthen and consolidate the development of emergency management system.
6. Based on the requirements of the "Three Simultaneities" for comprehensive governance and fire service safety, the Company will refine the "Level of Inherent Safety", including improvement and expansion of infrastructure projects, such as automatic fire prevention system.
7. The Company will continue to push forward the establishment of "subordinate" units under the national security organizational bodies, at the same time strengthening the coordination between functional departments, enhancing its education on safety issues, with a view to raise the awareness on national security risks and enhance self-protection and self-help ability, and to minimize incidents concerning foreign affairs and major political incidents.



## I. Our Staff

Staff is the valuable wealth of the Company and the foundation for the development of the Company. The Company will employ staff with strict compliance with the laws, strictly prohibit the employment of child and forced labor and will never harm the interests of employees. Currently, all employees of the Company are adults who aged 18 or above and have complete civil capacities. They have all entered into labor employment contracts with the Company directly or indirectly through labor dispatching companies, with a contract execution rate of 100%. Meanwhile, the Company also pays close attention to the interests of staff and strives to create favorable working environment for them to contribute to the Company and achieve good development.

**As at 31 December 2015, the Company has a total of 7,344 employees**



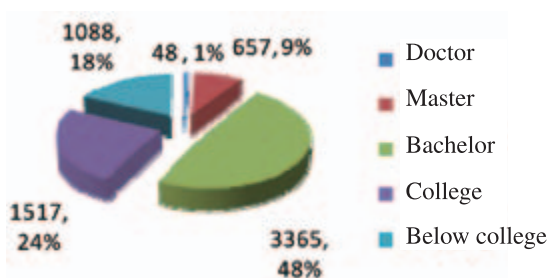
### 1. Employment Diversity

#### 1.1 Current Condition of Employees

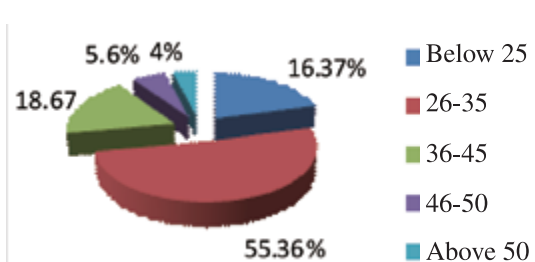
The Company continues to strengthen the optimization and management of human resources and strives to establish a dynamic and competent team with high academic qualifications, young age, advanced techniques and strong professional skills. Currently, the Company has recruited a number of talents possessing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

The mobility of staff in the Company is low. Over the last three years, the employee turnover rate was controlled within 5%, and only 0.61% in 2015.

**Breakdown of Education Level**



**Age Composition**



## Part IV Care for Staff

**Gender Composition**



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

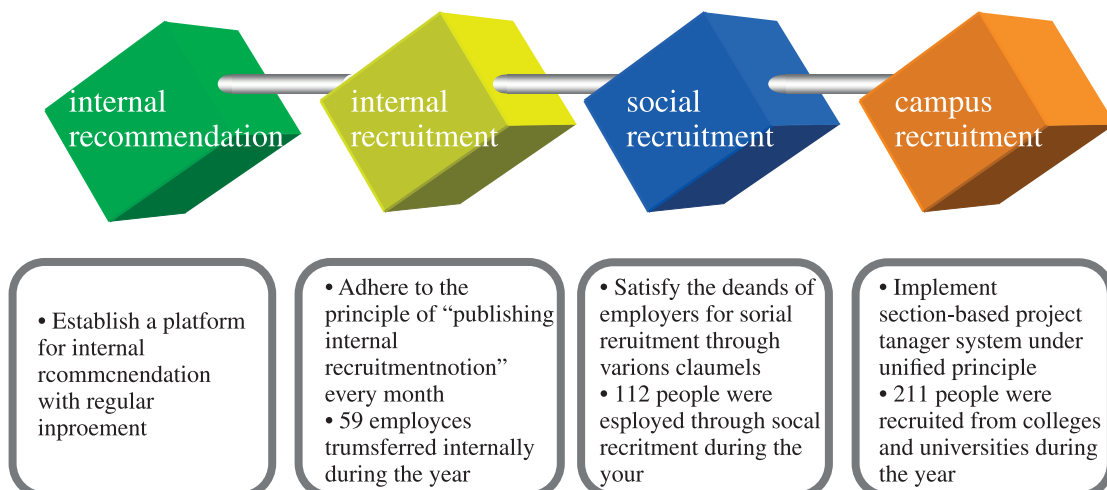


**Local Staff in Zhuzhou and Introduced Top Talents**



### 1.2 Staff Recruitment

The Company has established various recruitment channels based on different needs of talents for various positions, including internal recommendation, internal recruitment, social recruitment and campus recruitment. The Company also introduced innovative measures to conduct recruitment of LGBT talents and overseas talents, which will provide the Company with talents supporting its major industrial development.



2. Staff Salary and Benefits

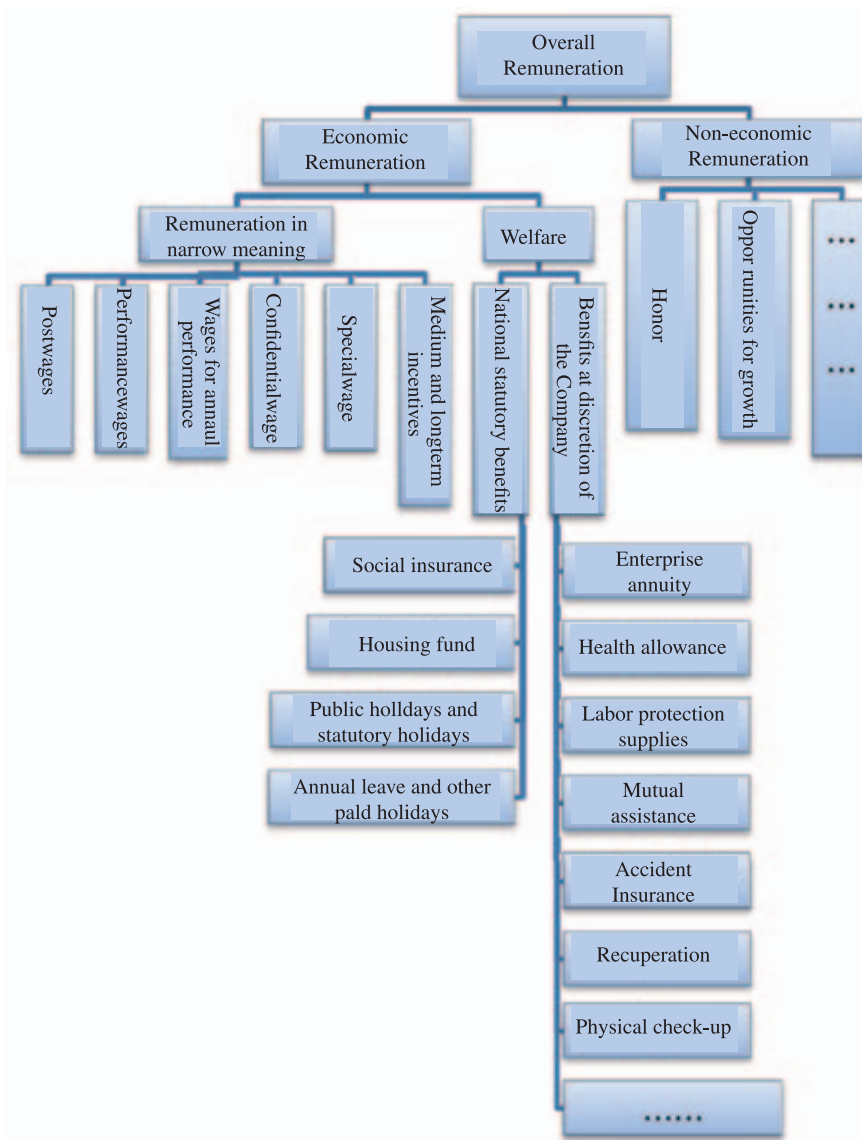
The Company adheres to the principle to put efficiency as top priority while giving consideration to fairness and equality, and establish a salary system which links salary with position, capability and performance.

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 illness), work injury insurance, maternity insurance, unemployment insurance and housing 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 one-child families, etc.

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

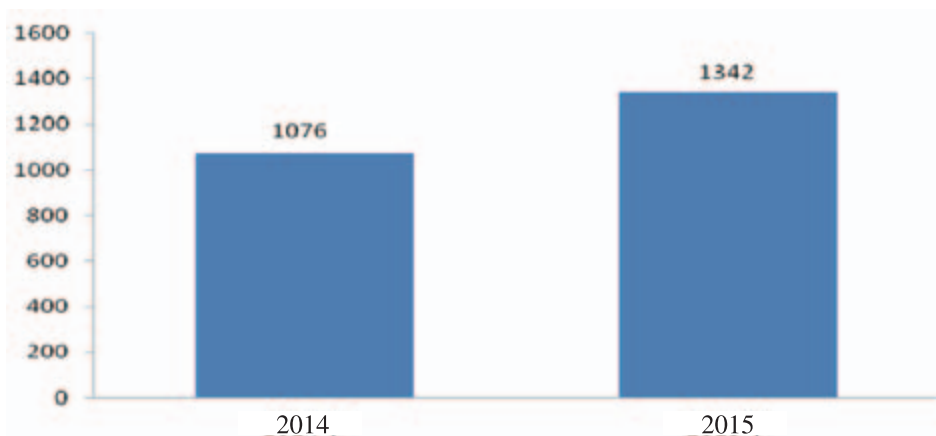
The Company has promoted the concept of overall remuneration since 2007. The Company has extended the concept of remuneration to include welfare and other non-economic rewards such as honors, career development, etc. Accordingly, the staff can have a comprehensive understanding of the returns given by the Company and thus the incentive provided to them in form of remuneration is enhanced.



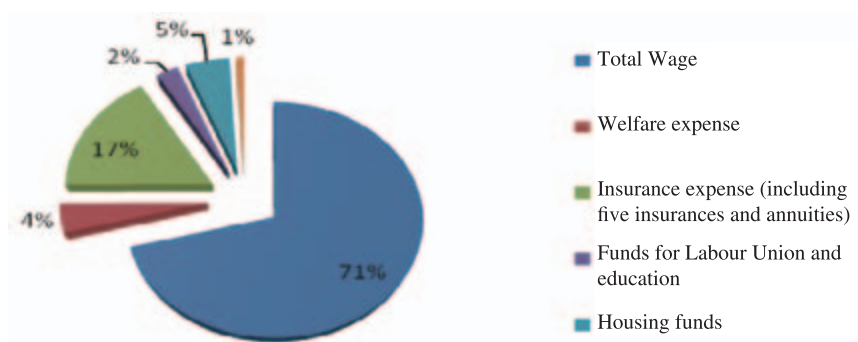


Increase in and Composition of Total Remuneration (Wages and Surcharges)

Increase in Total Remuneration (RMB Million)



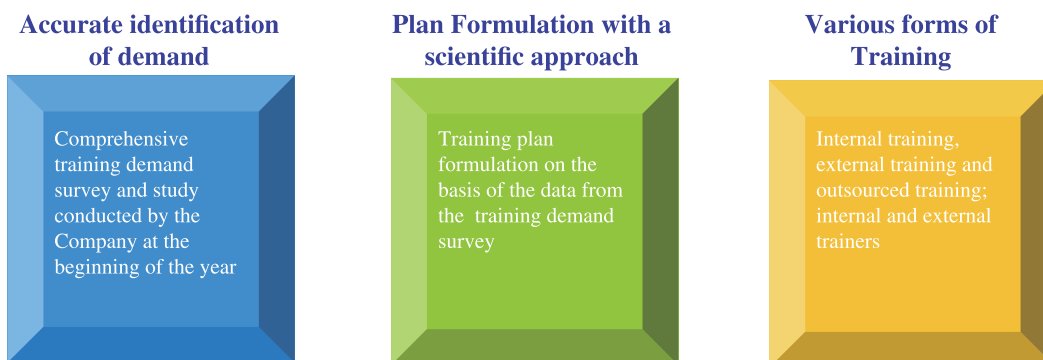
Composition of Total Remuneration



04

### II. Training and Development

#### 1. Staff Training and Management



Based on the extensive training demand survey and study along with the analysis that demands on the Company's development strategy differ from that of departmental and career development of its staff, 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 commencement 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 between internal and external programs in order to help enhance motivation, ability and perseverance of its staff with objectives and directions.

The internal training team of the Company continues to grow and realizes dynamic management through selection and assessment. The Company currently has 272 internal trainers, including 148 three-star internal trainers, 101 four-star internal trainers and 23 five-star internal trainers. To facilitate sharing of internal experience and knowledge transmission, the Human Resources Department commenced internal training through two platforms, "Happy Classroom" and "Expert Forum" in 2015. A contingent of staff actively shared their experience and achievement on stage, reflecting the internal training program further enhanced in breadth and in depth. As of the end of 2015, 18 new programs were launched under "Happy Classroom" while 33 were launched under "Expert Forum". Meanwhile, in view of identifying internal trainers with high potential, the Human Resources Department ran the competition "2nd Best Instructor of the Age" in December 2015. This substantially enhanced the recognition of the internal trainers and the training from the staff of the Company, further promoting the efforts in internal training of the Company.

In 2015, the Company's total investment in training was approximately RMB 10,960,000. The training time per capita was 48.7 hours and 1,389 training projects were completed. The implementation rate of the Company's annual training plan was 90.24%.

[Case Studies]

The Company planned and organized various training projects, including "Serial Training Programs for Professional Manager on Leadership Enhancement", "Serial Training Programs for Reserve Management Talents", "Action Learning on Enhancing Strategic Leadership", "Special Training on Project Management", "Talents Training for Core Members and Junior Staff in Manufacturing Centers", "Training for Reserve Talents in Times Electronics", "Training for Reserve Talents in Ningbo Times" and "Serial Special Training Programs for Marketing Staff", etc. The Company further pushed forward the setting up of a learning organization and applied the results from the action learning approach to the formulation of the strategy towards "13th Five-year Plan". Team learning model of "Chaishubang" was promoted at various units such as After-sale service Centers and Manufacturing Centers, and 8 training programs on leadership (including action learning) were organized.

The Company has built a core talent team for promoting the success of the Company's strategies. The Company also launched training programs such as "Practical Training for International Talents", "Training for PDT Project Manager", "Technological Management Training Camp for Core Members", etc.

The Company actively arranged relevant staff to participate in various special training programs organized by CSR and CRRC ZELRI, including "Formosa Plastic Training for Comprehensive Management of CSR", "Training of Leadership Development for CSR", "Training for Core Technical Talents (Germany)", "Training for Core Technical Talents (Korea)" and "Ability and Quality Training for Job Foremen", "Training for Internationalization of financial staff", etc.



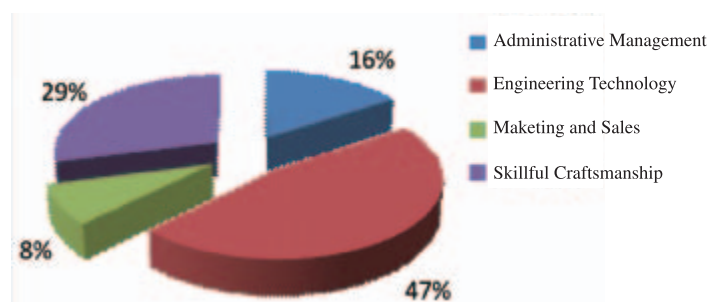
## Part IV Care for Staff

### 2. Staff Career Development

The Company has developed a career development bridge system with 5 career development paths for professional 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 staffs above C-level accounted for 22% 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”, 20 “senior technological experts”, 51 “technological experts”, 4 “senior management experts”, 9 “management experts” and 3 “skillful experts” of CRRC.

#### Composition of career development paths:



## III. Health and Safety

### 1. Safety Objective and Index Control

The Company insists on the people-oriented principle in its course of promoting safety development. It carefully implements the safety management system of “Party and Government Share the Same Responsibility and One Position with Dual Responsibility” and strictly implements accountability system for safe production. *Responsibility Commitments on Management of Safety Objectives* are signed between all units to break down the safety indexes and pass safety pressure to each level, with a view to achieving safety management involving all staff from every aspect in the whole process. In 2015, the Company had no staff that was killed or heavily injured in an accident or newly suffered from occupational disease which would lead to the liability of the Company and thus achieved the target of “Three Zeros”. There were two accidents that led to minor injuries during the year. In 2015, the Company was awarded the honorary titles of “Advanced Unit for Safe Production” and “Advanced Unit for Objective Management of Occupational Health” in Zhuzhou City.



**2. Occupational Health and Safety Management System**

In 2015, through process control measures such as the acquisition/identification/compliance appraisal/publicity of laws and regulations concerning occupational health and safety, identification/appraisal and control of sources of hazard, implementation of management plans of occupational health and safety systems, optimization of procedures and systems, internal audit, supervision audit and management appraisal at the two-level OHSAS18001 system, the Company enhanced its EHS self-control capacity, continuously improved the operation performance of its EHS management system and successfully passed the supervision audit of the OHSAS18001 management system and the authentication certificates of the system remains valid accordingly.



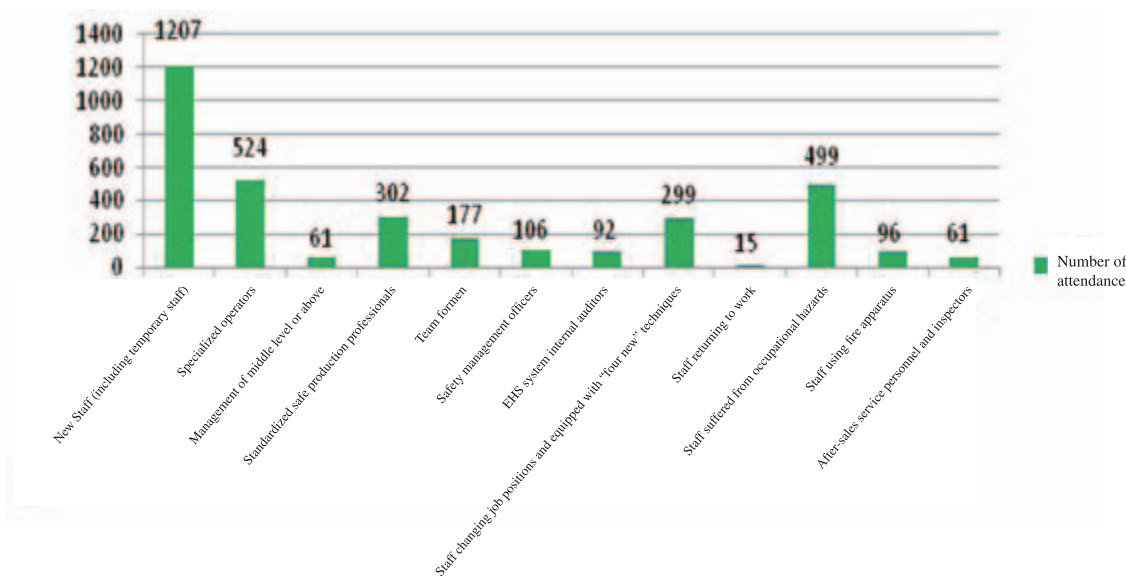
**Authentication Certificate of OHSAS18001 Occupational Health and Safety Management System**



### 3. Strengthened Training on Safety and Environmental Protection to Enhance Employees' Awareness of Safety Issues and Their Safety Skills

The Company further enhanced various educational and training programs concerning safety and environmental protection and organized diversified educational and training activities through combination of various ways such as "Attract Talents and Go Global". These programs and activities include auditing skill enhancement training for EHS internal auditors, safety training for cadres of middle level or above, professional knowledge training on safe production standardization for professionals, safety training for team foremen, training for operators exposed to occupational hazards, three-level safety education and training for new staff, etc. In 2015, 3,439 staff of the Company at various levels have received safety training, thereby achieving 100% safety training attendance of new staff and 100% certified discharge of job duties by safety management officers, specialized (equipment) operators and team foremen. Safety education and training for other staff also complied with the national standardized safe production requirements for first-class enterprises.

Target Groups for Safety Training



#### 4. Enhanced Fundamental Management and Promoted the Construction of Lean and Safe Workplace with Full Force

In order to further enhance the fundamental safety management, the Company issued the *Notice on Promotion of Lean and Safe Workplace with Full Force* in 2015, clearly setting out its overall plan and timetable for such promotion. Based on the original lean and safe workplaces, each unit applied the concept of lean and safe workplaces in all production and operation premises as well as subsidiaries at all levels. It also established workplace management for temporary workplaces. All units actively organized and commenced training, on-site guidance and quarterly self-inspection regarding lean and safe workplaces while the Company conducted random inspection regarding lean and safe workplaces of each unit semi-annually, so as to identify problems on a timely basis and strive for continuous improvement and enhancement. At the end of the year, the Company conducted benchmarking and acceptance tests as well as appraisal on all units. All 157 workplaces of the Company have reached the standard of excellence or above, representing an excellent rate of 72.6%. With the consistent efforts in promoting lean and safe workplaces, the Company further refined its fundamental safety management and enhanced the fundamental safety management standard.

#### 5. Stress on Investment in Safety Projects and Vigorously Launching Risk Elimination and Rectification against Safety Loopholes

Safety risks have to be eliminated to avoid accidents. The Company regularly conducts risk elimination and rectification against safety loopholes pursuant to its safe production standardization rules. With the principle of “Combining Regular and Random, Specific and General, Self-check and Sampling check”, every safety check is well-planned and execution with records and a relatively complete and standardized safety check mechanism is thus formed. In 2015, the Company launched 17 safety and environmental protection checks of various types, identified 359 safety loopholes and completed 351 rectification works, with a rectification completion rate of 100%. Meanwhile, various business units and groups (workplaces) under the Company also carried out safety checks, with 1,512 safety loopholes identified during the year and all rectification works related thereto have been completed. In addition, the Company has established specific accounting items for safe production costs, including safe production fee, environmental protection and sanitation fee as well as labour protection fee, so as to collect safety and environmental protection fee pursuant to the requirements of *the Administrative Measures for Provision and Utilization of Safe Production Costs of Enterprises (Caiqi [2012] No.16)*. In 2015, the Company incurred safe production costs of approximately RMB15,149,000 for cost in relation to labour protection and safety technologies and measures. Investment in safety projects during the year are summarized in the following tables:

## Part IV Care for Staff

### Investment in Safety Projects in 2015

No.	Investment in Major Safety Projects	Investment (RMB 10,000)
1.	Improvement of the intrinsic safety of the high pressure testing area in the manufacturing centre	48
2.	Security video surveillance monitoring system of the key areas in the manufacturing centre	26.7
3.	Intelligence transformation for the photovoltaic testing station of the converter plant in the manufacturing centre	10.2
4.	Improvement of the layout of busbar plants by the printed circuit business department to integrate and expand the space for production and logistics use and eliminate safety loopholes such as obstruction of passages by goods	34.5
5.	Safety maintenance and repairs of high busbar shelves carried out by the printed circuit business department to guarantee the safety of people, machines and goods	26
6.	Improvement of the intrinsic safety of the testing area by the inspection and test centre	70
7.	Improvement of the safety of technical centre laboratories by the technical centre	12
8.	Improvement of the operational safety of 1#, 2# and 3# testing areas by Times Equipment	25
9.	Upgrade of the absorber workshop by Times Equipment with no safety accidents	5.8
10.	Completion of pilot project on information system of third-tier power supply equipment safety inspection by the Semi-conductor Business Department	9.5
11.	Improvement of fourth-tier collection facilities for chemical leakage from inventory by the Semi-conductor Business Department to ensure the effective collection of chemicals during leakage	2
12.	Other safe production costs	<u>1245.2</u>
13.	Total	<u><u>1514.9</u></u>

#### 6. Dedicated Efforts in Occupational Health Program to Protect the Health of Staff at Work

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 2015, the Company organized occupational health check-ups for 464 staff in-service. 11 staff changed their job duties due to occupational contraindication. By the end of August 2015, physical check-ups have been organized across all units of the Company, of which 23 were pre-employment check-ups and 243 were post-employment check-ups. The Company also jointly organized on-site monitoring for occupational hazard factors in operation sites exposed to these hazards with Zhuzhou City Occupational Diseases Prevention and Control Centre. Among which, 84 out of 85 check points were in compliance with the required standard, representing a compliance rate of 98.8% and conformed to the relevant requirements of the PRC laws regarding occupational health. The Company also launched a quiz campaign on prevention and control of occupational diseases. During the promotional week of occupational diseases prevention and control, the Company invited 200 operators exposed to occupational hazards to participate in the quiz campaign on prevention and control of occupational diseases to provide them with knowledge on occupational health and raise their self-protection awareness. The Company has also completed the reporting of occupational hazard factors accordingly.

### IV. Interests of Staff

#### 1. Effectively Practicing the Workers' Congress System to Exercise Workers' Rights

As the basic form of practicing democratic management by enterprises, 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 *Trade Union Law*.

Council of Labor Union is the operating authority of Workers' Congress and it is responsible for the daily work of Workers' Congress. The 150 existing staff representatives were 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 initiative and creativity, therefore effectively enhanced our enterprise quality and economic benefits.

## Part IV Care for Staff

Over 100 suggestions were received at the 2015 Workers' Congress. After sorting and extracting the suggestions that involved industry operation, policy research, globalization, core values, quality-driven approaches, synergistic development, employees' benefits, resources allocation, industrial separation, the Company has compiled 20 major suggestions, which were then assigned to responsible leaders and departments from various levels to track down and response to the issues.

The Company has also arranged staff representatives to collect opinions and provide feedbacks on 10 management documents including Administrative Measures for Remuneration.



### 2. Staff's Rationalization and Feedback Mechanism

1. In order to continuously increase its competitiveness and establish a harmonious labor relationship, the Company actively expanded the democratic channel with a view to motive staff's incentives and creativity as well as effectively exploit resource potentials. In 2015, the Company accepted 11,891 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. Care for Staff's Mental Health and Organize Diversified Activities

**Development of Mental Health Consultation:** In recent years, the Company placed great emphasis on both physical and mental health as well as harmonious development of our staff. Our care for the staff extends in-depth gradually from the physical level (such as different types of medical check-ups) and the material level (such as offering warmth in winter and providing schooling aid in autumn) to the mental level that concern about our staff's mental health and provide them with relevant guidance. The Company was committed to building a team of high quality mental health consultants. To this end, it had arranged certification examination for 24 consultants, developed practical trainings on TA communication and helping skills for advanced consultants, organized over 30 activities including counselling for students at schools and conducting interviews with prisoners, and conducted surveys on women workers and mental health assessment activities. By launching the aforesaid activities, the Company has trained up a team of seasoned consultants who are also the resources of the Company's counselling talent reserve, laying a solid foundation for future counselling projects of our staff.

**“Let the Heart Set Sail” training activities:** The Women Workers Academy, being part of the “Four Seasons of Fulltime Housewives” program, continued to serve as a heartwarming place for women workers to learn, play, communicate and share with each other by adhering to the theme of “Focusing on Enhancement of Quality, Laying Stress on Mental Health, Emphasizing Knowledge and Learning and Manifesting Elegance of Women Workers”. “Let the Heart Set Sail” training activities were organized with the support of over 200 women workers. The event invited mental health experts and authoritative experts on drawing skills in China to explain on the relaxation effect of drawing both psychologically and physically, aiming at exploring and discovering one's true self through simple, interesting and easy-to-master drawing techniques.





### 4. Care for Staff's Benefits and Dedicate the Company's Love to the Society

**“Double Offerings” activities:** The Company continued to carry out activities under the theme of “Offering Warmth with Sincere Care, Working Together for Social Harmony” and Autumn Schooling Aid activities, so as to obtain general background information on staff coming from families in need. The Company also actively conducted visits and interviews to collect and update the information about salary, degree of disability and difficulties faced by the staff in a timely and diligent manner. Such information were then compiled into tables and texts and reported to the superior departments in due course. Once approved, the Company would issue notices in time to ensure that the “Double Offerings” activities can be carried out accordingly.

Among “Double Offerings”, the “Offering Warmth” activities raised a total of RMB209,320 and offered help and comfort to 93 people; and a total of RMB185,320 was raised via the “Three Carings and Three Promises” channel; while the “Offering Coolness” activities made donation of funding and materials of RMB69,553.5 and RMB359,665.8, respectively.

The Autumn Schooling Aid activities provided financial assistance to a total of 12 staff in difficulties with student subsidies amounting to RMB42,000 in total. The accurate orientation, effectiveness, timeliness and sustainability of these activities make them one of the solutions to relieve difficulties of those in need, offering students from needy families a chance to change their fate with knowledge.

**Organizing Medical Check-ups and Treatments for Employees:** In 2015, the Company organized medical check-ups for 1,915 employees in total. The total amount spent on the medical check-ups was RMB832,545. With concerns over employees' physical health, the Company strived to protect the interests of its employees and to solve the problems identified during the check-ups in a timely manner, providing quality services to our staff.



## Part IV Care for Staff

**“Development in Third-Tier Cities”:** After conducting a thorough background check on the distribution and demand of office facilities, living facilities, sanitary facilities and cultural facilities of the after-sales service stations, the Company commenced to standardize the work of its after-sales personnel, distributed unified bedding products to the after-sales personnel and provided recommendations on the pilot projects of standardization of after-sales services in third-tier cities, thereby laying a foundation for future promotion.



## 5. Care about Staff's Harmonious Development Both Physically and Mentally by Organizing Diversified Events

**Handicrafts Exhibition:** The Company organized needlework classes under the theme of "Sewing Up a Fruitful Life and Road to Fortune", in which the female staff of the Company created over 100 pieces of splendid artworks of various types, including knitting, cloth arts, paper crafts, models, ceramics, drawings, calligraphy and photography, demonstrating the staff's pure heart and noble spirit as well as their exquisite craftsmanship. These ingenious artworks included an array of creations like cross-stitch embroidery made with fine stitches, oil paintings consisting of fine and delicate strokes, knitted slippers bringing comfort and warmth, gorgeous and elegant bead crafts, functional tissue boxes with lovely covers and ornaments made of scrap iron. All these stunning artworks showed our women workers' passion, love and happiness in lives and their appreciation and desire for art.



**Literature Reading Activities:** The Company organized various reading activities such as "Let's Share Sunshine and Happiness" with the support of female staff and 37 book reviews were received in these activities. Among the 7 reviews which were recommended and presented to the superior departments, one had won an award from the CRRC (formerly known as CSR).

## Part IV Care for Staff

**Story-Sharing Competition:** The labor union branch held a sharing session named “Different Stories from Different People” under the theme of “Dream of China, Beauty of Workers”. Candidates from 13 union branches shared over ten stories regarding the theme of “Cherish the Glorious History and Dream for a Bright Future”. The stories were told by various forms of performances, including videos, musicals and poetry readings, enabling the audience to experience the power of dream and the beauty of workers through legends in history and touching moments in everyday lives, at the same time passing on the core of our corporate culture.



**Cultural and sports events:** Under the theme of “Culture will Bring Energy Together, Thoughts will Lead the Way to Future”, the Company further implemented its cultural organization system from key areas to all regions, with a view to provide diversified recreational and sports activities to our staff and bring together their vitality. During the year, the Company organized a wide variety of cultural and sports activities, such as balloon volleyball, basketball, football, badminton and table tennis matches as well as cultural gala.



## Part IV Care for Staff

### 6. Build Up Corporate Culture to Achieve Comprehensive Enhancement on Staff's Image and Quality

In 2015, the Company organized regular thematic activities such as “The Third Corporate Culture Festival of Times Electric”, “Further Promotion of Pursuit of Quality Culture” and “Promotion of Strive for Success Culture”, with a view to cultivating our corporate culture and enhancing our staff's image and quality.



### I. Supply Chain Management

#### 1. Management Measures

1. Selecting suppliers based on a guideline that such suppliers will be in line with the future development of the Company.
2. Entering into annual performance agreements with key suppliers, monitoring the implementation of agreements for key performance and arranging support or providing assistance for improvement in particular items.
3. Holding regular business exchange on a quarterly basis with key strategic suppliers to promote mutual improvement.
4. Assigning quality engineers and quality inspectors to companies with frequent quality problems for onsite supervision to improve the quality management standard of such suppliers.
5. Promoting electronic purchase information platforms and order synergy with suppliers to enhance exchange of information with such suppliers and curb transaction cost.
6. Holding special VMI exchange with suppliers to lift the standard of supply chain control and facilitate reduction of supply costs of the suppliers.
7. Holding annual suppliers' conference on suppliers' relationship management.
8. Classifying suppliers into three classes for the purpose of management: strategic, important and general according to their importance; evaluating strategic suppliers on a quarterly basis and important suppliers on a semiannual basis.
9. Establishing a monthly reporting mechanism with respect to the information of key suppliers to urge them to improve quality control standard.



### 2. Support to Suppliers

In 2015, with the rapid growth of the railway industry in China, the Company continued to optimize the industry, expand its market, discharge their social responsibility and strive to foster a harmonious society with its “China Dream”.

The Company’s social responsibility lies in not only raising its own corporate social responsibility but also driving continuous development and enhancement of such responsibilities of the whole supply chain to encourage and support suppliers to become enterprises with a sense of social responsibility.

The Company regularly streamlines and identifies the impact of its products and operation on the society and takes relevant active measures accordingly. In respect of the whole procurement procedure of outsourced parts, in addition to complying with the requirements of laws and regulations, the Company set various performance indicators such as procurement cost, rate of timely supply and quality standards to conduct comprehensive assessment on performance and effectively push forward various improvements to further enhance our standard for procurement of outsourced parts. Internally, the Company emphasizes integrity and self-discipline of staff and has developed a fair and clean procurement platform, clearly defined key risk controlling points and related responsive measures to establish an honest, trustworthy and moral credit system.

To respond to China’s demand for energy saving, emission reduction and environmental remedies, the Company enhances the suppliers’ sense of corporate social responsibility in terms of various management requirements. Suppliers are required to pay attention to the impact of corporate behavior on environmental protection, in particular for suppliers of surface finishing services such as electroplating and painting, the products and services of which shall comply with the national industry standard and national quality assurance and accreditation. The suppliers shall possess sound capacity for pollutant treatment and authorized quality accreditation for waste discharge and are subject to regular supervision of the Company.

Meanwhile, the Company actively supports and participates in various public welfare activities organized by outsourcing suppliers to enhance its sense of social responsibility.





### **2.1 Standardized and Clearly Defined System to Enhance Strength**

The Company has developed and improved systematic and stringent supplier management procedures as well as supplier performance appraisal and corresponding incentive and penalty scheme to standardize the quality issues and handling procedures, clearly define the requisite standards on personnel management and business ethics. The suppliers are required to possess complete technique and quality assurance system. In 2015, the Company comprehensively optimized and upgraded all procurement-related procedures on the basis of the year 2014, with one procedure added and 16 procedures revised. Through these measures, the Company basically achieved end-to-end control on the purchase and supply procedures, involving two-dimensional concepts of supplier lifecycle management and material production cycle management such as supplier development, supplier management, procurement management, supplier performance appraisal and supplier withdrawal and elimination. Through definite requisite system standards, the suppliers have gradually enhanced its ability in self-management to promote mutual upgrade.

### **2.2 Local Purchase Brings Regional Economic Development**

The number of our local suppliers in Zhuzhou was 49. Among them the suppliers in bigger scale include Zhuzhou Shiling Traffic Equipment Co., Ltd., CRRC Zhuzhou Electric Motor Company Limited, Zhuzhou CRRC Electric Technology Co., Ltd., Zhuzhou CRRC Jihong Heat Dissipating Technology Co., Ltd., Zhuzhou Lince Group Co., Ltd., Zhuzhou Times Electronic Technology Co., Ltd, Engine Branch of CRRC Zhuzhou Electric Locomotive Co., Ltd., Zhuzhou Huacheng Technology Enterprise Co., Ltd., Zhuzhou Hongwei Industrial and Trade Co., Ltd., Zhuzhou CRRC Railway Transportation Equipment Co. Ltd. and Zhuzhou Huafen Enterprise Co. Ltd..

For procurement of outsourced parts, priority is given to local suppliers. Based on total purchase price, Zhuzhou City accounted for 80%, Chang-Zhu-Tan economic zone accounted for 95% and Hunan Province accounted for 95%. This has resulted in increase of number of the employed people and enhanced production capacity of the outsourcing factories and promoted local economic development. For example, suppliers such as Zhuzhou Riwan Precision Machining Co., Ltd. and Zhuzhou Times Metal Manufacturing Co., Ltd. alone reached an output of over RMB 350 million in 2015 and more than 2,000 people were employed. After providing support on technology, personnel and production management to Xiangtan Times Harness Co., Ltd from scratch, the Company achieved an output of RMB 150 million and offered more than 200 job positions in 2015.

## Part V Social Harmony

### **2.3 Process Control Promotes Quality Improvement of Outsourced Parts**

The Company carried out process reviews for key outsourced products: in 2015 a total of 7 process reviews were done for key outsourced products (harnesses products, radiators, switches, water pipes and cabinets). This has effectively promoted the improvement in product quality of the Company's ancillary outsourced products for the society and the development of quality system.

### **2.4 Technical Support Ensures Improvement of Techniques and Ability**

In early 2015, the Company and outsourcing factories entered into the Agreement on Improvement in Techniques and Ability and conducted regular inspection and benchmarking on the techniques of outsourcing factories, optimized their technical process, discussed and communicated with the factories on common technical problems, actively introduced advanced and environment-friendly techniques and technologies and jointly formulated precautions to ensure controllable process and strive for comprehensive achievement in quality, effectiveness and environmental protection requirements as well as steady improvement of product quality. For urgent, big, difficult and complicated problems in the process of outsourcing production, the Company assigned expert teams to resolve them, and through a great deal of technical testing verification, it optimized and strengthened processing techniques, and enhanced suppliers' technical capacity, processing quality and production efficiency.

## **II. Public Charity**

The Company acknowledged the importance of mutual growth with the community. In 2015, the Company actively underwent activities featuring various themes of social responsibility devotion such as social assistance and support, student subsidy and environmental protection to repay society gratefully and actively perform the Company's social responsibility, disseminating our vision of corporate social responsibility to every corner of the community committedly.



1. Charitable Tree-Planting Event for Environmental Protection

To further realize the youth mission and responsibility of making contributions to the society, promote Lei Feng Spirit, guide the youth to actively participate in public welfare activities, on the morning of 14 March, the Company organized a charitable tree-planting event for environmental protection at the scenic zone of Xiangjiang, Hexi, Zhuzhou, and a total of more than 140 volunteers had participated in this charity event.



## Part V Social Harmony

### 2. “Dandelion Schooling Aid” Events

Youth goes with missions and the sun shines with compassion. In March, the Company arranged trips for teen volunteers to visit Jiufang Primary School, Zhuzhou and Guotian Primary School, Zhuzhou County, respectively, as the “Dandelion Schooling Aid” events. Books were donated to Jiufang Primary School and the volunteers helped them to complete the construction of the reading hall. Three water heaters and books were donated to Guotian Primary School, which practically solved the students’ problems of taking warm shower in winters.



### 3. “Gather the Glow, Walk with Compassion” 2015 Xiangjiang Trailwalker Event

From 1 to 2 May, the Company organized the “Gather the Glow, Walk with Compassion” 2015 Xiangjiang Trailwalker Event with more than 90 volunteers. During the 2-day-1-night event, the participants had to walk 63 kilometers to support public welfare with perseverance. All of the application fees from participants were set aside for charity.



4. “Affectionate Moments” Charity Sale Event

Yuexing Youth Volunteer Association of the Company organized “Affectionate Moments” Charity Sale Event. Through encouraging our staff to donate old clothes and accessories, we had received donations from more than 100 compassionate staff, including more than 400 pieces (sets) of clothes and over 70 accessory items. After being sorted and organized meticulously by the staff of Yuexing Youth Volunteer Association, the donations were put up for sale at a refreshing charitable sale event held at the headquarter area and industrial zone of CRRC ZELRI on 23 and 24 September, and a total amount of RMB3,300 were raised. All of the proceeds will be applied as payment of the subsequent basic tuition fee and miscellaneous expenses on behalf of a poor student from Xinyang Township, Liling City. All donated clothes gathered from the event were delivered to Liling Volunteer Association where they will be centralized and distributed to the homes of people in need.



## Part V Social Harmony

### 5. Launching a Series of 2015 “Going Out” Promotional Campaigns in High Schools

The Company further enhanced its popularity and influence domestically in colleges through the sponsorship to the Thirteenth Student Association Cultural Festival held by Huazhong University of Science and Technology. Through giant air brush, banners, advertisements on the front sides of evening party tickets, lightbox advertisements in the school campus, printing Logo on the presents for the garden party, Huazhong University of Science and Technology promoted the image and brand of the Company. This enabled more high school students to know the Company and delivered a good promotional effect.

### 6. Baoji Times, the subsidiary of the Company, Visiting Tianxiang Xiwang Primary School in Gansu Province for Education Sponsorship

Baoji Times, as the subsidiary of the Company, pursues the charitable concept of “Make contributions to the community” and launches a variety of supporting and donation activities. It focused on Tianxiang Xiwang Primary School located at Shejiaqu Village, Dagou Township, Huining County, Gansu Province as its designated spot for charity support by launching the charitable event “Infinite Love and Joyous Devotion”, which was fully supported by the leading officials and all staff of Baoji Times and the donations raised amounted to RMB24,221. Baoji Times donated certain multi-media equipment, 500 books and learning materials such as school bags, pencil cases and notepads for all students. It also provided study grant for the 5 most deprived and needy students.



## Part VI Future Outlook

Facing the opportunities and challenges arising from the internationalization, transformation and upgrade of China's rail transit equipment industry currently and in the future, the Company will position itself firmly in the rail transit concentric diversified industry. Leveraging fully its advantages in the aspects of management, research and development, resources, etc. and focusing on the three major themes, namely "Consolidation of Existing Leading Industries, Cultivation of Emerging and Growing Industries, Development of Cross-Country Operation Platforms", the Company will strive to create a new prospect along with the "13th Five-Year Plan" and to become the preferred supplier of comprehensive solutions for global transport and electrical systems in the energy sector:

1. To consolidate its leading position in rail transit with the backing of the CRRC brand. The Company will actively respond to the current situation of "Two Increases and Two Decreases" ("Two Increases" refers to the recent growth of revenues from overhaul, repair and maintenance as well as railway joint ventures; "Two Decreases" refers to the expected decline in the market purchases of locomotives and passenger cars) in the railway industry, and cope with it comprehensively by the main engine plants of CRRC. Strictly following the two major directions of "City Clusters" and urbanization development, the Company will continue to develop major inter-city markets with an aim to achieve a significant growth in scale. Meanwhile, the Company will speed up the promotion of LKJ and ATP, the new generations of mainline railways, facilitating the "Go global" strategy for high-speed railways.
2. To seize the strategic opportunities of railway engineering machinery vehicles. The Company will actively adapt to the new developments to consolidate our advantages on related vehicle platforms and systems. Taking advantage of the requirements set forth by China Railway Corporation on overhaul and distant monitoring, the Company will follow them and attempt major breakthroughs on areas such as high-end heavy rail vehicles, railway catenary railcars, metro engineering vehicles. Any brand new production is followed by overhaul, while overhaul is followed by repair and maintenance. Putting more efforts in the research on new business models, the Company provides our customers with system solutions for high-end repair and maintenance business.
3. To enhance the scale and profitability of the semiconductor industry. Leveraging the power semiconductor industry bases and overseas research and development resources, the Company will strengthen its domestic strategic alliances and unleash the platform effects of technological research and development. Meanwhile, it will expedite the development and the progress of marketization of IGBT, gradually shifting the paradigm from making technological breakthroughs to production line expansion and profit industrialization.
4. To broaden its vision and expand the emerging industries rapidly. The Company will timely introduce new mechanisms and models for emerging industries such as power supply, drive system of passenger vehicles, IGBT power modules for vehicles and marine engineering equipment, and actively cultivate the "highlights" and "selling points" of the industries in order to expand them within a short period of time.



## Part VI Future Outlook

5. To strengthen the “globalized operation” strategy. The Company will closely follow the “One Belt One Road” initiative, accurately respond to the international market environment and seize the diplomatic opportunities in relation to the high-speed railway industry of China in order to promote overseas business expansion.
6. To summarize and consolidate the results of merger and acquisition between industries. The Company will constantly adapt to the development pace of multinational business and integration and adopt the business models such as “Capital + Merger and Acquisition” and “Industry + Service” to unleash the capital leverage effect, fostering perfect integration of capital utilization and industrial operation.
7. The Company will implement its excellent management persistently and intensively push forward the “efficient organization” strategy.





# 株洲中车时代电气股份有限公司

ZHUZHOU CRRC TIMES ELECTRIC CO., LTD.

