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Connecting the World through Better Mobility



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CRRC Corporation Limited (CRRC)

2022

CRRC CORPORATION LIMITED (CRRC)

SOCIAL RESPONSIBILITY AND
ENVIRONMENTAL SOCIAL AND GOVERNANCE
REPORT

2022 Social Responsibility and Environmental, Social and Governance Report



Board Statement

The Board of Directors (“the Board”) oversees all environmental, social, and governance (ESG) matters. It is responsible for assessing and deciding on the Company’s ESG risks and significant concerns, as well as reviewing the progress made on the ESG goals. In addition, the Board actively participates in the deliberation and decision-making of ESG matters, formulates ESG strategies and oversees the implementation of ESG topics, advances ESG disclosure, reviews the Company’s ESG reports annually, and implements pertinent ESG resolutions to ensure their effectiveness and reliability. The Board and all directors guarantee that this report is free of false record or misleading statement or serious omission.

About the Report

As the eighth annual Social Responsibility Report released since the establishment of CRRC Corporation Limited (hereinafter referred to as “China CRRC”, “CRRC”, “the Company” and “We”), this Report accurately reflects China CRRC and its subordinate enterprises’ economic, social and environmental responsibilities aiming to achieve high-quality and sustainable development.

The reporting period of this Report is from January 1, 2022 to December 31, 2022. All data hereunder has been sourced from the Company’s official documents, statistical reports and financial reports, as well as social responsibility performance information collected, summarized and reviewed by the Company. Unless otherwise indicated, the currency in this Report is RMB.

The Report has been prepared under the *Guidelines for State-owned Enterprises Directly under the Central Government on Fulfilling Social Responsibilities and Guidelines for State-owned Enterprises on Better Fulfilling Social Responsibilities* issued by the State-owned Assets Supervision and Administration Commission (SASAC), the *Environmental, Social and Governance Reporting Guide* issued by the Hong Kong Stock Exchange, the *Guidelines on Self-Regulatory Supervision of Listed Companies No.1 - Standardized Operation Report* issued by the Shanghai Stock Exchange, the *Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0)* issued by the Chinese Academy of Social Sciences, the *GRI Standards* issued by the Global Sustainability Standards Board (GSSB), the *Guidance on Social Responsibility (ISO 26000: 2010)* issued by the International Organization for Standardization and the UN Sustainable Development Goals (SDGs).

You can find this Report in PDF and more information pertaining to corporate social responsibilities on the “Social Responsibility” page of the CRRC Portal (Website: <http://www.crrogc.cc>).

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Message from the Chairman



Chairman of the Board, CRRC Corporation Limited

Sun Yongcai

Over the first decade of the new era, China's railway network grew from 98,000 km in 2012 to 155,000 km in 2022, a world record length, with high-speed rails soaring from 9,000 km to 42,000 km. China leads the globe in terms of railway passenger transport turnover, cargo delivery volume, freight transport turnover, and transport density. The "Fuxing" EMUs have attained complete coverage across 31 provinces, autonomous regions, and municipalities, and over 70 percent of passengers opt to travel by EMU. CRRC responds to the needs of the times and satisfies the desires of the people by assisting China in attaining extraordinary railway accomplishments.

The 20th CPC National Congress, convened in 2022, drew out an ambitious blueprint for building a modern socialist country in all respects and advancing the great rejuvenation of the Chinese nation on all fronts through a Chinese path to modernization. It has thus endowed CRRC with the new responsibility of the times and historical mission. Bearing in mind General Secretary Xi Jinping's ardent mandate, we execute the guiding principles of the 20th CPC National Congress and the overarching requirement of "containing the COVID-19 pandemic while stabilizing the economy and keeping development secure" across the board. By accomplishing the assessment indicators set by the SASAC, CRRC has received A rating for 11 years in a row, exhibiting its responsibility as China's backbone and national identity card. CRRC continues to support the sustainable growth of the economy, society, and environment, as well as to generate diverse values for all stakeholders. We boast of the highest brand value among machinery central SOEs.

CRRC creates a dual-track, dual-cluster pattern.

Based on industry and value chains, we create a dual-track, dual-cluster pattern for rail transit equipment and new energy equipment. By providing sophisticated equipment, green and low-carbon energy, and quality services worldwide, we advance a green and low-carbon transition of the economy and society. While setting carbon neutrality goals for 2035 and 2050, we have built a leadership and promotion agency, developed a "1+10+N" action framework for peak carbon dioxide emissions and carbon neutrality, and improved the carbon emission accounting system. We have also rolled out the CRRC Energy Carbon Intelligent Cloud Control Platform to foster an all-level carbon accounting team. Meanwhile, we actively develop and employ green power, striving for a pilot zero-carbon role model. Guided by intelligent, integrated, platform-based, lightweight, and green development, we have initiated a host of projects in such fields as integrated materials, wind power, hydrogen energy, and energy consumption and carbon reduction. They are designed to enhance the capacity for low-carbon research and development, tap into the potential for carbon reduction, and work out a path to provide green services, sounding "value resonance" in the low-carbon age.

CRRC responds positively to the Belt and Road Initiative.

By developing the "Product Plus" and "System Plus" business models, we ramp up efforts for global presence. With goods supplied in 116 countries and regions and more to come, we have made a firm step towards establishing a world-class company and attaining quality development. In the witness of the heads of China and Indonesia, the Jakarta-Bandung High-Speed Railway made its premiere at the G20. The "Fuxing" EMU model was presented as a national gift reflecting the hopes of the Chinese and Thai peoples. The intelligent "Fuxing" high-speed EMUs "Ruixue Yingchun" offered services for the 2022 Beijing Winter Olympics and Paralympics, enabling athletes and journalists from across the globe to experience the allure of trains in the new era. The China-Laos Railway, the Jakarta-Bandung High-Speed Railway, and the China-Europe freight trains have become crucial links for global communication, open collaboration, mutual benefit, and cultural integration.

CRRC pursues innovation while upholding fundamental principles.

To accelerate the reform of market-oriented operation mechanism, we efficiently optimize management levels and bodies, and raise management efficiency, thus greatly boosting development vitality. As a result, we become a role model in the SOE reform of "learning from good examples, focusing on implementation, and promoting reform." Meanwhile, we strongly push the special comprehensive management action of "rigorous financial discipline and operation by laws and regulations" and the deployments pertaining to "Year of Enhancing Compliance Management" to practice the philosophy that "compliance is our core competitiveness." Furthermore, by synergizing the development of a hub of indigenous technologies, the length of modern industry chain, and the pilot task of building a strong transportation network in China, we work faster to produce series, family-based, standardized, and modular core technologies and key components, and have set up a R&D system for the industry chain, from fundamental devices and core components to key systems and complete vehicles. In 2022, three national key laboratories were established.

CRRC advocates workplace safety and low-carbon operation.

By strengthening the occupational health and safety management system, we have developed the "CRRC Safe Building" management system and the "Health Tree" model to properly safeguard the health and safety of our staff. In 2022, we had zero fatal accidents arising from workplace safety, zero Class I or higher fire and explosion accidents, zero new occupational disease among current employees, and zero local cluster outbreaks. We implement clean production on a global scale and continue to innovate in environmental protection technologies for low resource use, harmless emissions, clean energy, and a green environment. In 2022, we invested RMB 447 million on 138 technological transformation projects for environmental protection. Seven subsidiaries (21 in total) were recognized by the Ministry of Industry and Information Technology as demonstration green factories, and four subsidiaries (14 in total) passed the evaluation of green factories in the rail transit equipment manufacturing industry.

CRRC cultivates talent and develops communities.

While building a workplace that is equal, fair, and just for our employees, we also launch the "Five Projects" for talent development to streamline the career development pathways of workers for orderly and logical flow and allocation of human resources, and develop a more efficient personnel training system so that they can have a larger space to showcase their talent. Among our efforts to improve the compensation management and compensation increase systems, we introduce post-performance management for all staff. In 2022, seven medium- and long-term incentive plans were approved, achieving full coverage of medium- and long-term incentives for the "scientific and technological SOE reform" and "double-hundred action" enterprises. By promoting rural vitalization in counties receiving our paired assistance and exploring new pathways to industrial assistance, we have consistently improved the local infrastructure and the quality of the rural living environment, seeking to create a harmonious and attractive new countryside. Also, we have actively engaged in volunteer education and medical care services to contribute to community development. In 2022, the CRRC invested RMB 17.275 million of assistance fund in targeted counties and introduced RMB 1.7 million of assistance fund. We trained 560 primary-level cadres, 158 leaders in rural vitalization, and 633 technical specialists. We also acquired agricultural items totaling RMB 32.385 million and contributed to the sale of agricultural goods totaling RMB 6.955 million.

While the path is far, the train will arrive; Despite the difficulty, things will be accomplished. In 2023, with a global vision in the new age, CRRC will continue to consolidate strong links, shore up weak links, and strive for breakthrough. We will grab chances objectively, soberly and keenly, and respond to challenges with initiative, positivity, and composure. Together with stakeholders, we will sustainably maximize the comprehensive economic, social, and environmental value to foster long-term prosperity for the Chinese nation. We will continue to provide Chinese wisdom and Chinese solutions to the world's fast growing rail transit, thereby contributing to a community with a shared future for mankind.

About Us

Company Profile

CRRC Corporation Limited is the world's largest supplier of rail transit equipment with the most complete product lines and leading technologies. Headquartered in Beijing, CRRC has ranked first in the world in rail transit equipment sales for many years in a row. CRRC is an A+H shares listed company incorporated by the merger of China CNR Corporation Limited and CSR Corporation Limited in line with the principle of reciprocity. On June 8, 2015, CRRC was listed on the Shanghai Stock Exchange and The Stock Exchange of Hong Kong Limited (stock code: 601766). In 2022, CRRC continued to rank among Fortune Global 500 and Top 100 Chinese Enterprises, secure its prominent place for many consecutive years on the list of "Most Admirable Chinese Companies" released by *Fortune magazine*, seeing its brand value ranking top in China's machinery manufacturing industry.

CRRC continuously enhances its sustainable operation capability, adheres to the mission of "Connecting the World through Better Mobility", and contributes to the promotion of social development. To compete in the global market, we accelerate innovation in technology, product and service model, and create serialized, modular, and standardized product platforms and technology platforms to keep pace with the development needs of advanced, applicable, intelligent, green, and safe rail transit.

CRRC has set up 86 overseas subsidiaries and 18 overseas R&D centers around the world, providing products and services to 116 countries and regions across the six continents.

Main Products

MUs

It mainly includes various EMUs and DMUs that have speed of up to 200 km per hour, 200-250 km per hour, and 300-350 km per hour and above, which are mainly used for main line passenger train services and intercity passenger train services. EMU products represented by "Fuxing" trains have independent intellectual property rights.

Locomotives

It mainly includes various DC-drive and AC-drive electric locomotives and diesel locomotives with a maximum traction power of 12 MW and a maximum speed of 200 km per hour. These locomotives are used as traction power for main line rail passenger and freight services. The Company's locomotive products have independent intellectual property rights.

Passenger carriages

It mainly includes seat cars, sleeping cars, dining cars, luggage cars, generator cars, special cars, plateau cars and double-deck railway passenger cars with a speed of 120-160 km per hour, which are mainly used for main line rail passenger services. The Company's passenger vehicle products have independent intellectual property rights.

Freight wagons

It mainly includes various types of railway open-top cars, box cars, flat cars, tank cars, hopper cars and other special freight trains, which are mainly used for the freight transportation of main line railways or industrial and mining enterprises. The Company's freight vehicle products have independent intellectual property rights.

Urban rail transit vehicles

It mainly includes subway vehicles, light rail vehicles, urban (commuter) vehicles, monorail vehicles, maglev vehicles and trams, rubber-tired vehicles, etc., which are mainly used for urban and suburban commuter transport services. The Company's urban rail transit vehicle products have independent intellectual property rights.

New industries

It mainly includes wind power equipment and components (wind turbine motors, blades, gearboxes, towers, converters, wind power flexible support, wind power super capacitors, etc.), new materials (vibration and noise reduction materials, lightweight materials, aramid, etc.), electric drive system for new energy vehicles and the machines, components and parts products in multiple industries such as environmental protection, industrial digitalization, heavy machinery, shipbuilding and marine engineering. The above-mentioned products of the Company have independent intellectual property rights.

Mechatronics

It mainly includes traction electric drive and network control system, diesel engine, braking system, cooling and heat exchange system, train operation control system, passenger information system, power supply system, and gear transmission equipment, which are mainly used for the Company's main line and intercity EMUs, locomotives, urban rail transit vehicles, and rail engineering machinery. Some products are independently provided to third-party customers as components. The above-mentioned products of the Company have independent intellectual property rights.

Main Businesses

CRRC's main businesses include: research and development, design, manufacturing, maintenance and repair, sales, leasing and technical services of railway locomotives, rolling stocks, EMUs/DMUs, urban rail transit vehicles, engineering machinery, various electromechanical equipment, electronic equipment and components, as well as electronic devices and environmental protection equipment; information consultation; industry investment and management; asset management; import and export businesses.



Analysis of Risks and Challenges

CRRC gains insight into the risks and opportunities that the external environment and industry trends pose to its sustainable growth. The Company escorts sustainable development by identifying the supply, operational and regulatory risks arising from global economic downturn and low-carbon transition of industrial machinery sector, as well as seizing the opportunities presented by mergers and acquisitions and low-carbon transformation.



Challenge and opportunity	Description	External environment and industry trends	Response
New challenges	New challenges from uncertainties and instabilities	<ul style="list-style-type: none"> As a result of the global COVID-19 pandemic, the Russia-Ukraine crisis, and China-US trade tensions, the globe is undergoing profound shifts not seen in a century. The international balance of power is witnessing an upheaval. Unilateralism and protectionism are clearly on the rise. "Black swan" and "grey rhinoceros" events occur occasionally. Significant uncertainties and instabilities bring about risks such as an unstable business climate, fluctuations in raw material prices, and supply chain disruptions. 	<ul style="list-style-type: none"> CRRC has created a new development pattern of dual circulation. Leveraging the driving role of industrial chain leaders, the Company has enhanced the underlying and support capabilities of the supply chain as well as the resilience and safety level of the industrial chain. Thus, upstream, midstream, and downstream large, medium, and small businesses can develop synergistically. CRRC has optimized the layout of its industrial chain, strengthened sustainable supply chains, and helped upstream manufacturers intensify risk management.
	New challenges from the downward pressure on the economy	<ul style="list-style-type: none"> China's economic recovery is not yet on a solid foundation due to the COVID-19 pandemic and the global economic recession. The demand for EMUs shrunk substantially under great threefold pressure composed of increasing demand shrinkage, supply shocks and flagging market expectations. 	<ul style="list-style-type: none"> CRRC has launched the campaign for quality and efficiency improvement and the two-way incentive assessment to maximize the release of benefits and effectively stabilize the fundamentals of business development.
	New challenges from industrial restructuring and industrial chain reconstruction	<ul style="list-style-type: none"> Propelled by the restructuring of international peers and the cross-border integration of new industries, formats, and models, the process of industrial chain reconstruction is gaining momentum. 	<ul style="list-style-type: none"> CRRC has intensified its focus on innovation, leveraging its expertise, technology, and talent advantages to expedite integration into high-caliber opening up and building of a high-quality "Belt and Road". The Company has been actively engaged in global competition to enhance its resource allocation capabilities, optimize global resource layout, and develop a new form of competition and cooperation relationship.
	New challenges from low-carbon economy in response to climate change	<ul style="list-style-type: none"> Climate change has become a backdrop against which businesses plan for strategic development and engage in competition. The international community and domestic regulators have increased oversight of their impact on the environment together with energy-saving and emission reduction efforts. The path towards low-carbon development may pose significant challenges to the conventional way of production and operation. 	<ul style="list-style-type: none"> CRRC has taken new steps in the process of transformation and upgrading, especially by implementing the action plan for carbon peak and carbon neutrality across the board. In active response to climate change and advance green development, the Company has intensified a transition to renewable energy sources, phased out outdated production, and tapped into the potential of energy-saving and carbon reduction.

Challenge and opportunity	Description	External environment and industry trends	Response
New opportunities	New opportunities from economic recovery and stabilization	<ul style="list-style-type: none"> Benefiting from optimized policies against the COVID-19, the focus of work has shifted from preventing infections to protecting public health and preventing severe illness in a stable and orderly manner. The order of production and daily life has returned to normal, and the economy is showing signs of recovery and stabilization, suggesting that it may rebound in the near future. 	<ul style="list-style-type: none"> CRRC has successfully achieved its operating objectives and tasks by adhering to the "17348" work guideline according to relevant requirements set by the central government.
	New opportunities from implementing the strategy to expand domestic demand	<ul style="list-style-type: none"> According to the <i>Implementation Plan for the Domestic Demand Expansion Strategy for the "14th Five-Year Plan" Period</i>, "We will speed up building a larger "eight-plus-eight" horizontal and vertical high-speed railway network crisscrossing China's huge landscape." "We will support major city clusters to take the lead in building intercity railway networks." "We will support the construction and use of industrial railways for key enterprises, ports, and logistics centers." "We will increase the share of rail transit in motorized travel." <i>The Program of Building National Strength in Transportation and the Program of Developing Smart Urban Rail</i> have also propelled the industry, which is still amid an important period of strategic opportunities. 	<ul style="list-style-type: none"> Upholding the philosophy of win-win via synergy, CRRC has served national strategies aiming to boost China's strength in manufacturing, product quality, aerospace, transportation, cyberspace, and digital development.
	New opportunities from new infrastructure construction	<ul style="list-style-type: none"> The CPC Central Committee and State Council attaches great importance to new infrastructure construction, and have been accelerating its layout. 	<ul style="list-style-type: none"> Utilizing its advantageous main responsibilities and main businesses, CRRC has contributed its wisdom and solutions to building a modern high-quality three-dimensional transportation network that is convenient, smooth, economical, efficient, green, intensive, intelligent, advanced, safe and reliable.

Social Responsibility and ESG Management

Along with the rapid development of China's economy and society and the upgrading of rail transit equipment products, CRRC has increasingly deepened its understanding of social responsibility. In particular, the deep integration with the capital market, benchmarking with world-class companies, and extensive communication with stakeholders have prompted CRRC to establish a social responsibility and ESG management system for better integration of social responsibility and ESG philosophy into corporate management, so that we can actively assume social responsibility.

Social Responsibility Philosophy

Deeply aware of the significance of social responsibility fulfillment, CRRC continuously enhances corporate social responsibility awareness. We adopt the social responsibility philosophy of "Dedicated to Our Founding Mission and Committed to Our Social Responsibility" and adhere to the mission of "Connecting the World through Better Mobility", continuously promoting the integration of social responsibility philosophy into our corporate operation and management. This not only summarizes our social responsibility philosophy, but also serves as a navigation mark that guides CRRC's social responsibility practice.

Our value pursuit

Upholding the right path

Our development pursuit

Following the right trend

Our moral pursuit

Adhering to high ethical standards

Our CSR pursuit

Shouldering major responsibilities

Social Responsibility and ESG Management System

Improving the social responsibility and ESG management framework

CRRC further functions the supervisory duty of the Board on ESG work. CRRC has set up a leading group for corporate social responsibility (CSR) to review, discuss and decide on the direction, content, and implementation of CSR and ESG. Working groups have also been established to manage CSR on a routine basis. As the highest governing body of CRRC charged with CSR, the Board is responsible for core work such as reviewing CSR and ESG management plans and annual CSR reports. CSR is practiced by functional departments at the headquarters and subsidiaries to ensure that CSR is fully implemented at all levels of the Company. The Board fulfills its leading role in advancing CSR and ESG work competently. In addition to reviewing sustainability objectives and development plans, it has provided guidance and recommendations for enhancing ESG performance. An efficient, unimpeded, timely, and accurate governance mechanism has hence formed. CRRC plans to set up a CSR and ESG committee under the Board to further improve its ESG governance structure. This committee will be able to examine ESG from the Company's vision and mission and integrate it into corporate strategy, thereby improving communication between the Board and investors on ESG topics.

CRRC strengthens management of CSR and ESG goals. The Company establishes medium- and long-term goals for ESG carbon emissions, resource consumption, and other key performance metrics based on its internal and external circumstances, decomposes these goals, and develops strategies for achieving them.

CRRC enhances CSR and ESG systems. Focusing on creating a long-term mechanism for CSR and ESG management, the Company improves CSR and ESG strategies. Relevant governance, integration, performance, and communication mechanisms are also enhanced. This ensures effective standardization, institutionalization, and systematization of CSR and ESG management.

Rolling out the campaign to enhance ESG rating

CRRC has decided to upgrade CSR and ESG work during the "14th Five-Year Plan" period. The Company intends to increase its ESG mainstream rating to the forefront of the entire industry and central SOEs in four or five years.

Benchmarking improvement. Based on capital market ESG ratings, the HKEX ESG Reporting Guide, and best practices at home and abroad, CRRC streamlines weak indicators and properly grasps internal and external changes and its characteristics. After assessing problems and identifying ESG rating influencing factors, the Company has made clear the order and resource match of ESG improvement items. These efforts establish the groundwork for organizing CSR and ESG improvement activity during the "14th Five-Year Plan" period.

A scientific work plan. To integrate CSR and ESG into functional management and operation, CRRC develops key actions and tasks with well-defined responsibilities. The Company has produced 28 improvement items pertaining to ESG issues such as corporate governance, corporate conduct, labor management, health and safety, clean technology opportunities, hazardous emissions, and waste. The ESG management improvement plan is based on the findings of an ESG improvement interview. CRRC has also prepared and presented the *CRRC Action Plan for ESG Improvement during the "14th Five-Year Plan" Period* and the *ESG Index Management Manual* to the Board for deliberation.

Promotion in key subsidiaries. CRRC advises subsidiaries to incorporate CSR and ESG improvement work into their development plans during the "14th Five-Year Plan" period as a key part. The Company also plans to explore the experience and methods for executing CSR and ESG improvement efforts, and to promote them across key subsidiaries.

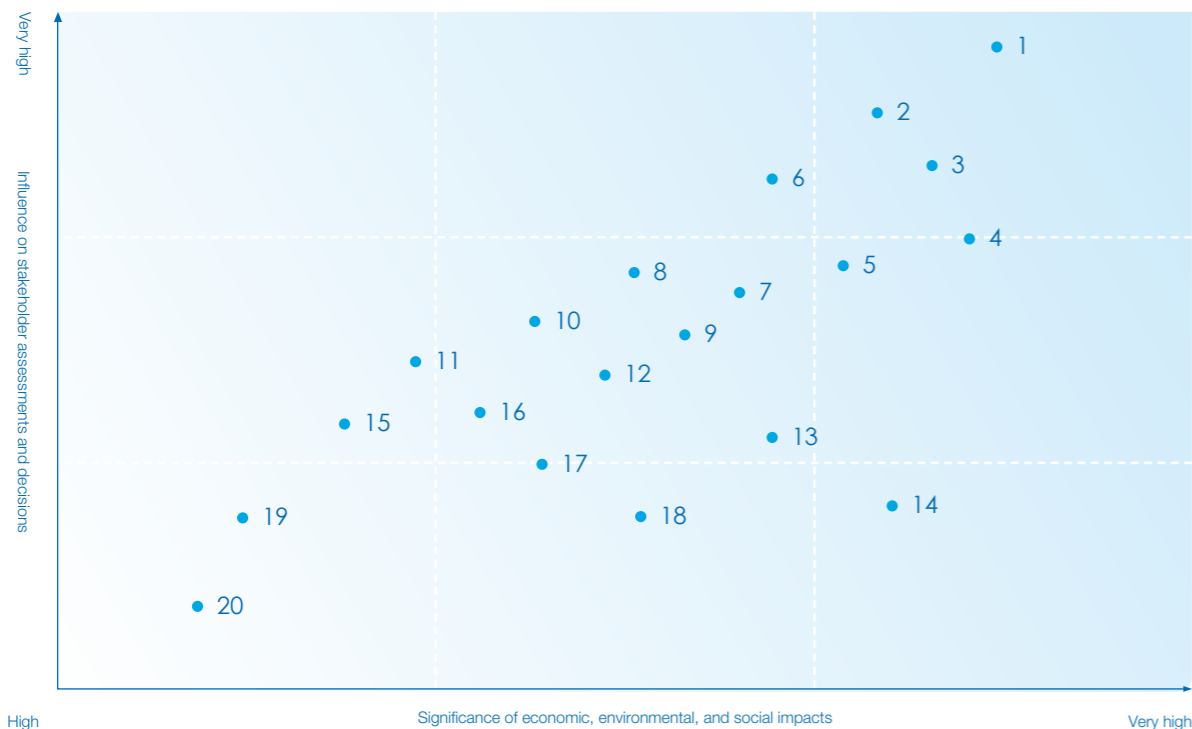
Increasing ESG communications

Strategically focusing on capital market concerns, CRRC strives to holistically enhance the quality of CSR information disclosure. A dual-drive improvement approach of "promoting management by rating and promoting rating by management" has been established, setting the groundwork for raising CSR and ESG ratings. CRRC has published CSR reports for several years, strengthened cross-cultural integration abroad, and issued overseas CSR reports. Through events such as the Public Open Day, the Company thoroughly and intuitively engages with stakeholders. CRRC reveals important advances and accomplishments in CSR performance and maintains responsiveness to social concerns over key issues of interest to stakeholders via media, the official website, and conferences, among others.

Identification of Materiality Issues

We seek the opinions of the Company's internal and external stakeholders, and benchmark with the top international companies in disclosing CSR issues to further improve and define the content and process of the report. After identifying the issues concerned by shareholders and judging their materiality, we finally decide on the boundary of the issues and the extent of disclosure so as to ensure more accurate and comprehensive disclosure of the CSR management, practice and performance.

1. Ensure the product quality	6. Value low-carbon development	11. Strengthen cooperation	16. Provide diversified products
2. Implement workplace safety	7. Care for employee development	12. Protect intellectual property rights	17. Enhance client service
3. Serve the public travel	8. Enhance the compliant operation	13. Integrate into the "the Belt and Road"	18. Support rural vitalization
4. Strengthen the scientific and technological innovation	9. Launch energy conservation and emission reduction	14. Serve cargo transportation	19. Enhance supply chain management
5. Respond to national policies	10. Promote the industrial development	15. Care for employee health	20. Contribute to community development



Stakeholder Engagement

We interact with stakeholders like clients, governments, partners, employees, regulators, etc. through promotion meeting, open day, road show as well as other online and offline activities, incorporate their concerns and demands into our CSR topics and respond to them through a series of CSR practices.

Stakeholders	Expectations and Requirements	Means of Communication
Government and regulators	<ul style="list-style-type: none"> Complying with laws and regulations Ensuring the product quality Carrying out energy saving and emission reduction Maintaining and appreciating the state-owned assets Promoting the technological progress Benefiting the country and its people 	<ul style="list-style-type: none"> Conscientiously implementing national policies Participating in the formulation of regulations Receiving regulatory assessment Communicating with local governments
Investors	<ul style="list-style-type: none"> Steady growth in return on investment Stable operation Information disclosure and transparency 	<ul style="list-style-type: none"> Improving profitability Timely disclosing information
Clients	<ul style="list-style-type: none"> Providing high-quality products and services Satisfying the diversified requirements of clients Creating value for clients 	<ul style="list-style-type: none"> Official website Visit and interview Customer satisfaction survey Corporate brochure
The public	<ul style="list-style-type: none"> Safe and reliable services Operational transparency 	<ul style="list-style-type: none"> Enhancing service capacity Communication and interaction
Employees	<ul style="list-style-type: none"> Protecting employees' rights and interests Ensuring occupational health Promoting occupational capacity Improving career paths Balancing work and life 	<ul style="list-style-type: none"> Making corporate affairs public Dialogue with the management Employees' congress Employee satisfaction survey Visits
Suppliers and partners	<ul style="list-style-type: none"> Open, fair and equitable procurement Contract fulfillment Mutual benefit and long-term development 	<ul style="list-style-type: none"> Joint R&D Joint events Daily communication
Peers and industry organizations	<ul style="list-style-type: none"> Fair operation Win-win cooperation Boosting industrial development 	<ul style="list-style-type: none"> Industry conference Association activities Workshops and seminars
Communities	<ul style="list-style-type: none"> Conducting targeted poverty alleviation Participating in community development Supporting charity cause 	<ul style="list-style-type: none"> Cooperation Public benefit activities Volunteer services
Environment	<ul style="list-style-type: none"> Saving energy saving and reducing emission Supporting green industry Advocating green office 	<ul style="list-style-type: none"> Green operations R&D of eco-friendly products Charity on environmental protection

Smart and Low Carbon Transition Improves CSR Competitiveness

Feature 1 Smart and Low Carbon Transition Improves CSR Competitiveness

The planet is our shared home, and sustainable development is vital to the survival of humanity. Out of unprecedented responsibility, General Secretary Xi Jinping made a solemn commitment to the international community that China will aim to hit peak emissions before 2030 and for carbon neutrality by 2060 (China's 30-60 Decarbonization Goal). This commitment was made at a critical strategic juncture of building a shared future for all life on earth and a community with a shared future for mankind. As a leading high-end manufacturer, CRRC actively practices the strategy of carbon peak and carbon neutrality, and implements the new development philosophy entirely, correctly, and thoroughly. Also, the Company has also set a leading and challenging carbon neutrality objective of achieve operational carbon neutrality by 2035 and full value chain carbon neutrality by 2050 ("35-50" Carbon Neutrality Goal).

Guided by green investment, green innovation, green manufacturing, green products, green services, and green enterprises, we integrate carbon reduction, zero carbon, and negative carbon technologies across industry, value, and technology chains. Zero carbon energy action, zero carbon transportation action, green manufacturing action, carbon asset action, carbon digital action, and carbon brand action have been launched to advance green development at full swing. Through these efforts, CRRC aspires to be a leader of green manufacturing, a creator of green living, and a pioneer in green development.

Improving the carbon peak and carbon neutrality system

Based on the national "1+N" policy framework and guided by its carbon peak and carbon neutrality action plan, CRRC has further developed a "1+10+N" action framework to assure an effective and feasible path to carbon reduction. In addition, a unified and standardized carbon emission accounting system has been established to promote effective accounting. Together, they provide a steady stream of working impetus for achieving the carbon peak and carbon neutrality goals. In 2022, CRRC was selected as China's Industrial "Leader" of Carbon Peaking.

Set up a leadership and promotion office

CRRC has set up a leadership and promotion office for carbon peak and carbon neutrality, under which there are an overall promotion and management group, a low-carbon industry and investment group, and a low-carbon products and services group. Subsidiaries have also swiftly established and filed on record their leadership and promotion offices with well-defined personnel and division of labor. Hence, a top-down management structure for carbon peak and carbon neutrality offices has formed.

Establish a "1+10+N" action framework for carbon peak and carbon neutrality

CRRC plans to deploy 10 carbon neutrality "roadmaps" such as the carbon peak and carbon neutrality action plan, and energy efficiency improvement, and complete "N" (42) primary subsidiaries' emission reduction "construction drawings". By the end of 2022, among the ten "roadmaps", CRRC has published the measures (guiding opinions) for carbon emission index assessment management and for clean energy equipment investment, issued the standards for pilot green low-carbon supply chain, and rolled out the energy carbon intelligent cloud platform. The first draft of the *Action Plan for Carbon Peak and Carbon Neutrality, Green Energy Use and Energy Efficiency Improvement* has also been completed.

Improve the carbon emission accounting system

To standardize and unify carbon accounting standards, the Company has prepared the *CRRC Guidelines for Greenhouse Gas Emission Accounting* with clear accounting boundaries, complete coverage, unique features, and industry leadership. Special training on CRRC carbon emission data accounting has been delivered to build an all-level carbon accounting team. Based on energy-saving monitoring centers in the railway industry, CRRC has also established its own carbon verification office.

Foster an all-level carbon accounting team

CRRC has provided special training on carbon emission data accounting throughout the value chain of seven important industries, including rail transport, wind power, and solar energy, as well as carbon emission accounting methodologies for large-scale operations. A total of 401 accounting personnel from businesses of all levels across the globe have passed the examination and obtained carbon emission accounting training certifications. Relying on the China Certification & Accreditation Association (CCAA), CRRC has trained registered greenhouse gas inspectors in order to cultivate the qualification of carbon verification specialists. A total of 59 specialists have passed the training and registered with the CCAA.

Build the CRRC Energy Carbon Intelligent Cloud Platform

The green performance index data platform and the carbon accounting data platform have been established to remotely monitor the energy consumed by businesses using over 1,000 tons of standard coal online. Initial results have been realized for green core data assets, paving the way for green mining and big data analysis.

Launching the zero-carbon pilot demonstration program

CRRC actively develops and utilizes green power to position as a zero-carbon pilot demonstration. The plan for constructing Songyuan Wind and Solar Power No.1 Zero Carbon Park has been completed. Furthermore, the Company has been encouraging the plan preparation and construction of zero-carbon heating supply at CRRC Harbin, zero-carbon services at CRRC Zhuzhou, zero-carbon workshops at CRRC Changchun, and zero-carbon sewage treatment plants at CRRC Environment.

Case

CRRC zero carbon intelligent equipment industry base settles in Qujing City, Yunnan

In March 2022, CRRC TMT Qujing Company, a subsidiary of CRRC Zhuzhou Institute, was unveiled and settled in Yunnan, marking its first off-site new energy factory. The subsidiary will build a 10GW industrialization base housing zero-carbon intelligent equipment, including solar inverters, energy storage systems, wind power converters, intelligent bus boxes and reactive power compensation devices in Qujing City, Yunnan Province. In addition, it will provide software and hardware support for zero-carbon technologies, system solutions, and general contracting services.



Case

CRRC Haixi Zero Carbon Industrial Park for New Energy Equipment Manufacturing officially commences construction

In September 2022, the groundbreaking ceremony for CRRC Haixi Zero Carbon Industrial Park for New Energy Equipment Manufacturing was held. The park will focus on core industries such as wind power, solar power, and energy storage. Once completed, it will be the most representative industrial base of the whole new energy industry chain in Qinghai Province, providing low-carbon/zero-carbon life energy solutions backed by digital intelligent technology throughout the life cycle. After attaining the 2GW annual designed capacity of integrated wind power, solar power, and energy storage equipment, the project will assist Delingha City in supplementing and reinforcing the whole clean energy industrial chain and aid Haixi Mongolian and Tibetan Autonomous Prefecture in establishing a highland of clean energy industry.



Developing low-carbon products

CRRC delves persistently and pervasively into new technologies, formats, and models. Guided by intelligent, integrated, platform-based, lightweight, and green development, the Company has initiated a host of projects in terms of integrated materials, wind power, hydrogen energy, and energy consumption and carbon reduction. They are designed to enhance the capacity for low-carbon research and development, tap into the potential for carbon reduction.

Case The world's first urban train powered by hydrogen rolls off the assembly line

CRRC Changchun Railway Vehicles Co., Ltd. has developed the world's first hydrogen energy city train with independent intellectual property rights with Chengdu Rail Transit Group. It is composed of four sub-trains and could go as fast as 160 km/h. Featuring a built-in hydrogen power system, the train is a milestone in the R&D and application of hydrogen energy technology in China. A hydrogen fuel cell and a supercapacitor are installed for power supply. With energy producing only water as a byproduct without nitrogen or sulfur and a stable and noiseless reaction process, the train represents another independent innovation leap forward in China's rail transit sector.



Case Enhancing the ability to independently develop and industrialize its MW wind power gearbox

In May 2022, the G60010 wind power gearbox independently developed by CRRC Qishuyan officially went offline and was shipped abroad. This is a batch order with tiny dimensions, low weight, a high torque density, and a high cost-effectiveness. It is a significant step in advancing CRRC's wind energy development in China.



Exploring green services

CRRC vigorously advocates the green and low-carbon development strategy, and works out a path to provide green services, sounding "value resonance" in the low-carbon age.

Case Providing efficient and customized green financial services

After releasing the *Green Credit Financial Service Program*, CRRC Finance Company took a number of steps, including establishing a green financial service team, innovating green loans, opening green approval channels, and improving lending efficiency via corporate account overdraft and revolving quota loans. These initiatives encourage member enterprises to produce green and low-carbon goods, innovate green and low-carbon technologies, and construct green and low-carbon industrial bases at subsidized loan rates. By the end of 2022, CRRC Finance Company had provided more than RMB 1.4 billion in green loans to support the development of green industries of member enterprises via the production of high-efficiency motors, green urban rails and wind power equipment, as well as the acquisition of raw materials.



The BRI Creates CRRC into a Symbol of Chinese Strength

Feature 2 The BRI Creates CRRC into a Symbol of Chinese Strength

As a significant worldwide provider of rail transport equipment, CRRC has responded actively to the Belt and Road Initiative (BRI). On the basis of bolstering optimism, the Company prioritizes its participation in the BRI and implementing the strategy to boost China's strength in manufacturing. By delivering Chinese wisdom and Chinese solutions for the fast growth of global rail transport, CRRC aims to contribute to building a community with a shared future for mankind.

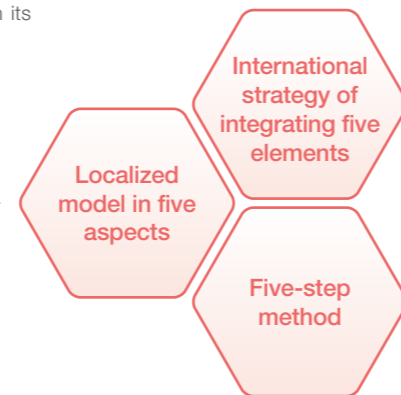
Practicing the BRI model

Responding to real demands overseas, CRRC actively proposes Chinese system solutions to aid in localized manufacturing, propelling the CRRC model to expand internationally.

CRRC seeks internationalized operation across the industry and value chains with an all-round operating model of "product + technology + service + capital + management" in order to increase customer dependence on its expertise, technology, and services.

CRRC pursues localized manufacturing, localized workforce, localized procurement, localized maintenance, and localized management in its localized operations, which is the only way to participate in the construction of the "the Belt and Road" and realize transnational operation.

CRRC participates, stands firm, maintains its stance, integrates, and shares in global cooperation and competition.



Case CRRC delivers a batch of 7000 series metro cars to the Chicago Transportation Authority (CTA)

The CTA 700-series Metro Train Project undertaken by CRRC hits a record for the largest number of metro cars exported a developed country, marking a significant achievement for China in the global high-end manufacturing market. CRRC has constructed a railcar assembly factory in southern Chicago. Local purchasing and manufacturing have bolstered companies and created over 200 jobs in Chicago. The factory started batch delivery of the 7000-series metro cars in June 2022. They will be put into service on eight metro lines in Chicago to replace the existing ones and provide higher-quality transport services for local residents.



Case CRRC offers rail transit service solutions

The Mexico City Metro Line 1 Modernization Project undertaken by CRRC is its first "system +" project abroad. It consists of 29 metro trains, with two manufactured and assembled in China and the rest 27 in Mexico. In 2021, CRRC took the lead in establishing Mexico Rail Transit Equipment, and built a new train manufacturing and assembly plant in Querétaro. By creating more than 150 local jobs and over 70 local suppliers, the plant has effectively developed and upgraded the local rail transit equipment industry. In 2022, the first locally made new train rolled off the assembly line. Using advanced technology, the train is energy-saving, eco-friendly, safe, comfortable, and it can accommodate a huge number of passengers. Its departure interval will be substantially reduced as a result of brand-new train and signal system design, providing passengers with modern travel experience.



The Mexico City Metro Line 1 Modernization Project undertaken by CRRC was shortlisted among top ten classic PPP projects in the world by the United Nations Development Program



Participating in the BRI development

CRRC operates business in countries and regions along the BRI. When exports shift from low- and middle-end to high-end, their categories diversify and become more individualized. To make travel in BRI countries and regions more easy, safe, and swift, CRRC offers a full coverage of high-speed rail, motor trains, urban rail, locomotives, engineering vehicles, buses, trucks, motors, wind power equipment, and new materials.

CRRC manufacturing and solutions have gained a growing popularity in BRI countries and regions. In particular, China-Europe freight trains, the China-Laos Railway, the Jakarta-Bandung High-Speed Railway, and the China-Africa Railway have become crucial links for global communication, open collaboration, mutual benefit, and cultural integration. By the end of 2022, CRRC had set up 18 overseas R&D centers and 86 overseas subsidiaries in the world. With products and services available in 116 countries and regions on six continents, basically covering those along the BRI, CRRC has showcased a good image of Chinese railways, Chinese-made products, and Chinese equipment.

Case Tailored-made Jakarta-Bandung High-Speed Railway with Chinese standards debuts at G20 Summit

As the first of its kind in Southeast Asia, the Jakarta-Bandung High-Speed Railway is a landmark project that bridges the BRI with the "Global Maritime Fulcrum" concept. It is also the first Chinese model high-speed railway project using the whole system, all factors and the entire industrial chain at abroad. Once completed, the project will reduce travel time between Jakarta and Bandung from over three hours to 40 minutes. Based on the "Fuxing" China Standard EMU technology platform with the fastest commercial operation speed in the world, CRRC has tailored high-speed EMUs for local operating environment and route conditions. The trial operation of the Jakarta-Bandung High-Speed Railway was a full success at the G20 Summit in November 2022.



Case CRRC makes significant progress on several projects in Latin America

In 2022, a consortium formed by CRRC Hong Kong and other relevant parties won the bids for the Avenida 80 Light Rail project in Medellin, Colombia, the line 4 light rail project in Guadalajara, Mexico, and the lines 4, 5 and 6 projects in Monterrey, Mexico. In the wake of the Mexico City Metro Line 1 Modernization Project, these efforts represent another milestone with its expertise in the digital and intelligent "system +" business throughout the life cycle, and a new breakthrough in market expansion.



Case CRRC-made high-speed internal combustion EMU premieres at the UAE National Day celebration

As the first trunk railway passenger car project in UAE, the Etihad high-speed internal combustion EMU is a pilot demonstration project for developing passenger transport business in UAE, which is crucial for assisting UAE in constructing a modern railway network in line with international standards and promoting local social and economic development. On the occasion of the 51st National Day commemorating the formation of the UAE, the Etihad high-speed internal combustion EMU designed by CRRC made its premiere, which was highly greeted by all sectors of the UAE.



Case CRRC rolls out its intelligent cold-chain equipment Lancang-Mekong Express

The Lancang-Mekong Express, the first international freight train between China and Laos, entered operation in January 2022. At a speed of 120km/h, it will arrive within 26 hours, halving normal international freight trains. With constant stations, route, time, and price, it demonstrates that intelligent temperature control and all-factor energy system solutions in the cold chain industry with high-end equipment of the intelligent cold storage cold chain at its core can better meet international cold-chain transport. CRRC has made a significant step toward establishing a "R&D + equipment + services" ecological incubation platform for cold storage.



Striving for Robust Development Based on Premium Services

New Opportunities in the New Era

Pursuing high-quality development as our overarching task, we will make sure that our implementation of the strategy to expand domestic demand is integrated with our efforts to deepen supply-side structural reform; we will boost the dynamism and reliability of the domestic economy while engaging at a higher level in the global economy; and we will move faster to build a modernized economy. We will raise total factor productivity, make China's industrial and supply chains more resilient and secure, and promote integrated urban-rural development and coordinated regional development, so as to effectively upgrade and appropriately expand China's economic output.

—Report to the 20th National Congress of the Communist Party of China

Our Response

CRRC shoulders the responsibility of "serving our country by developing industry and making our country stronger by manufacturing high-end equipment." Based on industrial and value chains, we create a dual-track, dual-cluster pattern for rail transit equipment and new energy equipment. We continuously provide sophisticated equipment, green and low-carbon energy, and quality services worldwide. We are committed to advancing a green and low-carbon transition of the economy and society as a high-end equipment manufacturer and system solution provider with global competitiveness.

Our Achievements

- A dual-track, dual-cluster pattern for rail transit equipment and new energy equipment
- Operating income: RMB **222.929** billion
- Net profit attributable to shareholders of the parent company: RMB **11.653** billion



Rail Transit Equipment

The equipment manufacturing industry is a pillar of our country. CRRC focuses on its main responsibilities and main businesses. Based on value creation and customer needs, the Company develops the "Product Plus" and "System Plus" models to strengthen product life cycle management and provide green and low-carbon system solutions. CRRC strives to build a safe, green, intelligent and facilitated transportation system. By promoting the deep integration of railway network, transportation network and information network, we provide equipment for developing a strong transportation network across the country.

Passenger transport equipment

Boasting leading scale and advanced technology, CRRC can provide customers with three-dimensional, multi-level intelligent rail transit passenger trains. At speeds between 160 km/h and 350 km/h, the "Fuxing" EMUs represent a new level in China's manufacturing. Its marshalling consists of 8 to 18 distinct varieties that can acclimate to various environments, including the -40°C alpine region and the plateau area at 5,100 m above sea level. They are presenting the world with China's development achievements. Over 4,000 EMUs run across the country, accounting for two-thirds of the global total.

Case

The intelligent "Fuxing" high-speed EMUs "Ruixue Yingchun" provides services for the 2022 Beijing Winter Olympics and Paralympics

CRRC has tailored the intelligent "Fuxing" high-speed EMUs "Ruixue Yingchun" to provide high-quality services for the Beijing Winter Olympics. The Beidou satellite navigation system was installed for the first time. Thanks to lightweight technology, eco-friendly degradable materials, and graphene air purifiers, the EMUs create a green and low-carbon space. Advanced technologies such as cloud computing, big data, and AI are also used to build an intelligent integrated "train-air-ground" O&M system. An unprecedented milestone of autopilot at a speed of 350 km/h has been made. It is also the first time in the world to have an ultra-high-definition live broadcast studio on a high-speed train traveling at 350 km/h in order to achieve long-time stable transmission of ultra-high-definition signals. Incorporating "high-speed rail + 5G + 4K" technology into the EMUs enables functions such as intelligent navigation, intelligent services, and intelligent O&M to interact. A new intelligent and dynamic experience is provided to travelers, demonstrating China's achievements to the world.



Case

New-type "Fuxing" sets a new world record of 870 km/h relative to the intersection of high-speed trains

Two "Fuxing" trains successfully conducted a rendezvous test in the Puyang-Zhengzhou section of the Jinan-Zhengzhou high-speed railway. Each train ran at the speed of 435 km/h and the rendezvous time was only 0.86 seconds, creating a new world record of 870 km/h relative to the intersection of high-speed trains. The world's leading new "Fuxing" high-speed comprehensive inspection train was put into operation and completed a series of scientific experiments to verify the performance of new technologies and equipment. The purpose of these experiments is also to investigate the boundary conditions of EMU operation at higher speeds, thereby enriching the fundamental theoretical research results and engineering practices of China's high-speed railway.



Case

The plateau "Fuxing" EMUs run safely for over 1 million km and transports over 1 million passengers

In June 2022, the internal combustion powered vehicle of the plateau dual-source "Fuxing" EMUs celebrated the first year of safe operation. After traveling over 1 million km securely, the EMUs transported 1.137 million passengers and 47,800 tons of freight. The initial formation of the three-hour economic circle in cities such as Lhasa and Nyingchi has effectively propelled the region's high-quality economic development.



Urban rail transit trains

Urban rail transit is an integral part of China's modern integrated transportation system and China's public transportation. CRRC's focus in the sphere of urban rail transit equipment is the manufacture of urban rail trains. All types of subway/light rail trains, trams, maglev trains, and straddling monorail trains are among the Company's urban rail products in service. To satisfy the diverse development requirements of China's urban agglomerations and metropolitan areas, all in-service varieties have been deployed in various regions.

Case "Smart Train" on Wuxi Metro Line 3 completes upgrading

In June 2022, CRRC Nanjing and Wuxi Metro Group successfully upgraded the "Smart Train" on Wuxi Metro Line 3. The upgraded No.20 "Smart Train" on Wuxi Metro Line 3 is primarily equipped with new technologies and features, including Ethernet train control, integration of TCMS and PIS networks, DDU remote monitoring, on-board intelligent O&M support system, intelligent illumination, and intelligent air conditioning. Using this as a new starting point, CRRC will continue to prioritize travel facilitation and higher traffic quality in Wuxi.



Case Fenghuang maglev train officially opened to traffic

In July 2022, the Fenghuang maglev train developed by CRRC Zhuzhou was officially put into operation. It is the first maglev tourism project in China that integrates maglev, culture, and tourism. This three-car train operates safely and reliably at the designed speed of 100 km/h to satisfy rapid starting and stopping as well as operation on lengthy and steep gradients. The train is eco-friendly, safe, frictionless, and low-noise. Phase I connects the Fenghuang maglev cultural tourism project and the Zhangjiajie-Jishou-Huaihai High-speed Railway with a total length of 9.121 km. In addition to facilitating transportation between Fenghuang High-speed Railway Station and Fenghuang Ancient Town, its official operation has the potential to enhance the landscape axis, ecological corridor, and cultural corridor of Fenghuang.



Case China's first dual-current urban rail train goes into operation

The dual-current rail transit train developed independently by CRRC Changchun began operation on China's first dual-current urban (suburban) railway, Jiangtao Line. Using the first-ever dual-current auto switch technology in China, the train on the AC 25kV suburban railway can operate smoothly at speeds of up to 120 km/h to improve passenger comfort. It also provides a brand-new operation mode of direct access by a single train without transfer between suburban and urban areas, making travel more convenient for the citizens of Chongqing.



Freight logistics

CRRC supports the national strategies with new technologies, products, and services. By innovatively developing a series of new technologies, equipment and solutions such as railway transportation, cold chain transportation, multimodal transport, intelligent logistics, and recycling materials trading, we strive to provide new ideas and methods for the high-quality development of global freight logistics.

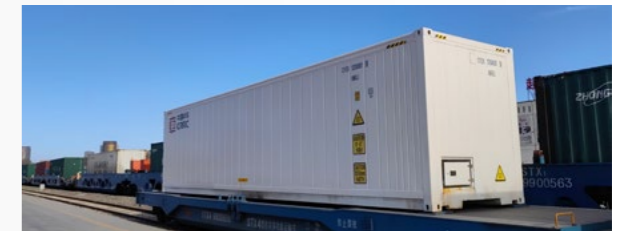
Case HXD3A freight electric locomotive passes double-heading 10,000-ton traction test

In October 2022, CRRC Dalian's HXD3A freight electric locomotive with eight axles and a power output of 9,600 kW passed the double-heading traction test for 10,000 tons on the Tangshan-Baotou Railway. To reduce axle load transmission and meet the demand for heavy-duty traction, the locomotive employs push-pull low-position traction technology. In the design, the wheel-rail relationship is thoroughly examined in order to reduce the wheel-rail force, rim fatigue, and track damage. The locomotive is self-resetting, anti-shedding, with a high energy absorption capacity, and the hook buffer system up to the requirement for heavy-duty traction. It is also environmentally adaptive and usable in adverse environments such as extreme weather, high wind and grit, and pollution.



Case CRRC facilitates cold chain transportation in Ordos Prairie

In December 2022, a train carrying fresh, high-quality mutton left Ordos City, Inner Mongolia Autonomous Region for Huanghua Port, Hebei Province. This 50-carriage train is outfitted with CRRC-made refrigerated storage containers. It is conveyed in a cold chain, and remote monitoring of all temperature information is implemented to keep the temperature in the containers below -15°C, thereby effectively assuring the quality of goods and enhancing the efficiency of goods transportation.



New Energy Equipment

CRRC adheres to the principles of ecological priority and green development, aiming to construct a green and low-carbon industrial structure. By incorporating low-carbon, zero-carbon, and negative-carbon technologies, the Company concentrates on renewable energy sources like wind, solar, hydrogen, and biological energy. We increase green and low-carbon investment, promote the transition to low-carbon energy, transform ourselves into a green and low-carbon enterprise, and facilitate the development of a green and low-carbon circular economy. Our new energy equipment includes clean energy equipment such as wind power and low-carbon transportation equipment.

Promoting the development of new energy industry

To achieve the ambitious goals of carbon peak and carbon neutrality, CRRC Zhuzhou Institute developed the JIXING platform. It concentrates on the six fundamental ideas of parity innovation technology, digital platform development, modular customized design, low-power cost advantage, CRRC integrated industrial chain, and smart wind farm operations and maintenance. Committed to advancing zero-carbon and negative-carbon wind power technologies, we seek to become a major force promoting the sustainable, long-term, sustained, and accelerated development of the wind power industry.

In October 2022, CRRC Shandong concluded the concrete pouring of the wind turbine foundation for the Tanghe 400 MW wind power project, CRRC's largest EPC general contracting endeavor to date. In November, the first batch of wind turbines were connected to the grid and began generating electricity.

Case CRRC's first complete wind power equipment rolls off the production line

In July 2022, CRRC Songyuan New Energy Equipment Industrial Park produced its first wind power equipment. The Songyuan New Energy Equipment Industrial Park Project is the largest single industrial project since Songyuan City was established. It is also a major industrial move of CRRC towards multipolar development. The Industrial Park is positioned as a pioneer of the carbon peak and carbon neutrality strategy, a model of central and local cooperation, a promoter of green manufacturing, a leader of technological innovation, a practitioner of the industrial chain leader system.



Case CRRC builds a new energy industry base

The CRRC Baise New Energy Equipment Industry Base project began in March 2022 with an investment of RMB 1.8 billion. The project is anticipated to generate an annual output value of RMB 4.5 billion and more than 1,200 jobs due to its production capacity of 300 wind turbines and 300 towers. It is also a significant step in Baise's efforts to establish a new energy equipment manufacturing base facing ASEAN, which will play a crucial role in Baise's long-term industrial development.



CRRC Baise New Energy Equipment Industry Base settles in Baise City



Case A MW-level offshore wind turbine rolls off the production line

In November 2022, CRRC's offshore wind turbine officially rolled off the production line in Sheyang City, Jiangsu Province. It is a custom-tailored offshore wind turbine based on offshore parity, modular design, and cutting-edge R&D platform, so as to obtain the highest rate of return and the lowest cost of electricity over the entire life cycle. CRRC has broadened the product offering in the wind energy industry and filled a technical gap in offshore wind energy.



Case CRRC becomes a top-tier participant in the energy storage industry

In 2022, CRRC Zhuzhou Institute delivered 20 energy storage system orders and accumulated a dozen of projects connected to the grid. In addition to illustrating the expansion of the new energy industry, it demonstrates that CRRC ranks among leaders in the energy storage market. Involved in the energy industry for more than two decades, CRRC Zhuzhou Institute is equipped with the entire industrial chain of battery PACK, battery cluster, BMS, PCS, EMS, and energy storage system, allowing it to provide a variety of customized solutions ranging from centralized large-capacity energy storage to distributed small-capacity energy storage.

The "concentric and diversified" development model adopted by the CRRC Zhuzhou Institute has fostered complete technical and industrial chains in wind power, solar power, energy storage, power electronics transmission and distribution, among others. By the end of 2022, CRRC Zhuzhou Institute has received over 20 energy storage system integration/EPC orders, with a total installed capacity of nearly 3GWh, encompassing a variety of products including air conditioning, liquid cooling, and 1C.



Developing new specialty materials

From China's backbone to green and safe travel, CRRC new materials can be seen everywhere. CRRC enhances synergistic innovation within the industrial supply chain. Committed to providing new specialty materials for emerging industries, high-end products, and global integration, we accelerate the development of new materials and upgrade new processes and technologies.

Case CRRC employs the high-performance rubber waterstop in immersed tunnel construction for the first time

The first domestic GINA waterstop developed jointly by CRRC TMT and China Communications Construction Company (CCCC) measures approximately 75.52 m and weighs about 4.5 tons. It was successfully installed in the Immersed Tunnel of Xiangyang East-West Axis Project, signifying the first time of using China's independently developed high-performance rubber waterstop in immersed tunnel construction. To facilitate the installation, CRRC TMT collaborated with the construction contractor to design the operating procedures, set up special spreaders, lifting points, and protection tooling, solve a series of problems such as positioning installation after lifting for a seamless connection between the waterstop and the steel shell at the end.



Case CRRC mass-produces wind power polyurethane blades

Since 2013, CRRC TMT has been investigating the feasibility of polyurethane blades. In 2016, it began the test, certification and engineering application. After four years of exploration and practice, through the phases of sample and small batch supply, CRRC TMT has mastered the batch manufacturing technology of polyurethane blades and is expanding its presence in the wind power blade industry.



Improving Products and Services

CRRC is committed to providing high-quality products and efficient services. By implementing "CRRC Q", we improve product quality from multiple aspects such as design, process, production, new technologies, and new measures. CRRC adheres to the lifeline of product quality. Through an advanced and scientific management system and the craftsmanship spirit of pursuing excellence, CRRC safeguards customer privacy, protects customer rights and interests, and provides users with system solutions of full life cycle management.

Quality management

CRRC bolsters the foundation of quality management

The Company prepared and issued the *Implementing Opinions on Further Strengthening Quality and Standardization Work*, which proposes 40 improvement measures; organized an expert group to evaluate the self-assessed quality management maturity of six subsidiaries including CRRC Datong; implemented the National Railway Administration's quality and safety standardization requirements, and organized the research and preparation of evaluation criteria for production quality and safety standardization according to the specifics of rail transit equipment industry.

CRRC rolls out quality campaigns

The Company organized the "Quality Month" and QC Team campaigns, with 43 achievements winning the Railway Industry Award, and two winning the second prize of the Invitation Competition of Excellent QC Achievements by Central SOEs; carried out the "micro-innovation" quality research and improvement activity, and reviewed 208 achievements of 41 subsidiaries. In 2022, CRRC won one first prize, one second prize, and two excellence prizes of Quality Technology Award issued by China Association for Quality.

CRRC facilitates digital quality management

With digital empowerment of quality management at the core, the Company prepared digital quality management plans; organized CRRC Tangshan to conduct research on digital quality management of rail transit equipment providers, and compiled the Construction Guide and the Application Report; implemented the industrial digitalization arrangement, performed work related to digital quality management, and reviewed the digital quality management of 18 subsidiaries.

CRRC ensures quality and safety

The Company organized quality and safety inspections to advance the rectifications of 29 hazards at the source on schedule; provided services at important occasions such as Spring Festival travel rush, Winter Olympics/Winter Paralympics, and the 20th CPC National Congress; organized special product quality improvement activities, focusing on inspecting and rectifying EMU braking, key stressed components, and vehicle windows; conducted research on quality and safety prevention projects, and prepared three guiding documents such as testing specifications and 11 review specifications for key parts.

Maintenance services

Wherever CRRC products go, CRRC services will follow to provide all-round maintenance services.

Case Kunming Service Center of China-Laos Railway

CRRC Dalian took the lead in establishing the Kunming Service Center of China-Laos Railway in Kunming, coordinated the integrated O&M support of China-Laos Railway EMUs, and drafted the *Integrated Operation and Maintenance Support Management System of the Kunming Service Center* and the *CR200J3 EMU Staff Addition Guidance Manual*; dispatched more seasoned technicians and professional technicians from the main component suppliers of EMUs, and set up an on-trip inspection for power concentrated EMUs traveling at speeds of up to 160 km/h, so as to ensure safe and smooth travel between China and Laos.



Achieving Win-win Cooperation with Partners

Supply chain CSR management

CRRC places an emphasis on cooperation management and exchanges. We promote development, innovation, and win-win results through cooperation to enhance the resilience and competitiveness of industrial and supply chains, so as to play a greater role in building a modern industrial system.

CRRC thoroughly advances procurement and supply chain responsibility management. Suppliers must sign a statement of compliance pledge that affirms their dedication to national laws and regulations on environmental protection and occupational health and safety. CRRC strives to promote the sound, safe, green, and low-carbon management of industrial and supply chains.

CRRC strengthens environmental management.

To build green industrial and supply chains, the Company has issued the *Guidelines for Green and Low Carbon Supply Chain Management of Rail Transit Equipment Manufacturing Industry: Evaluation of Supply Chain Management Enterprises and the Guidelines for Green and Low Carbon Supply Chain Management of Rail Transit Equipment Manufacturing Industry: Evaluation of Supplier Enterprises*, identifying five pilot enterprises of green and low carbon supply chain. To promote green and low-carbon synergy between upstream and downstream links in the industrial chain, carbon emissions, energy efficiency, and pollutant emissions are all taken into account when granting access to, evaluating and grading, and removing certifications from green and low-carbon suppliers according to the level of green supply chain management.

CRRC intensifies health and safety management.

The Company incorporates the administrative penalties imposed on suppliers in environmental protection and occupational health and safety into the management of misconducts. In accordance with the *Workplace Safety Law of the People's Republic of China*, the *Interim Provisions on Labor Dispatch*, and other laws, regulations and relevant provisions, CRRC has prepared the *Regulations on Safety Production Management of Relevant Parties of CRRC* for in-factory suppliers to make clear health and safety management requirements and review their qualifications and conditions. All relevant competent departments shall rigorously examine and refuse to sign relevant contracts or agreements with suppliers lacking legal qualifications or failing to comply with relevant laws and regulations on workplace safety.

Case Advancing honest, clean and standardized management of supply chain

CRRC Sifang bolstered supplier evaluation and compiled a supplier blacklist. In order to eliminate unreasonable exclusive and agent suppliers, safety and environmental protection violations and hefty administrative penalties become considerations for supplier access. In addition, a routine integrity risk prevention and control evaluation mechanism was established to conduct integrity risk prevention and control evaluation in procurement, enhance the supervision of employees throughout the procurement chain, and effectively standardize the management and power execution in the field of material procurement. The company increased efforts to prevent bid colluding and rigging, and to thoroughly investigate the respondents in order to eradicate related party transactions. CRRC Sifang enhanced supply chain capacity building collaboratively, communicated supply chain responsibility requirements at supplier conferences and special trainings, and held meetings and trainings at least three times a year, involving all key cooperative suppliers.



Cooperation exchanges with partners

By enhancing cooperation management, conducting cooperation exchanges, and concluding cooperation agreements, CRRC achieves a scale effect and a win-win situation, thereby promoting the quality development of the rail transit industry.

To foster greater synergy with complementary strengths, CRRC has signed strategic cooperation agreements with companies like China Energy Investment Corporation, China Life Insurance, and Grimm Group, as well as governments and departments like Taiyuan Municipal Government, Qingdao Municipal Government, and General Administration of Sport of China (GAS).



CRRC has signed a memorandum of understanding with the People's Government of Baise City and China Guangdong Nuclear New Energy on new energy cooperation



Signing Ceremony between CRRC and Wuxi Party Building Alliance

Case

CRRC attends the InnoTrans in Berlin, Germany

Themed on "A Better Future, A Smarter Way," CRRC shared with the world its "Green and Intelligent" solutions at the InnoTrans 2022. Our booth, covering an area of over 600 m², caught the attention of visitors with an array of exhibits, which includes a 600 km/h high-speed maglev system, high-speed intelligent EMUs, urban rail transit passenger transport system solutions, multimodal transport and intelligent heavy freight solutions, a hydrogen fuel cell power platform, hybrid locomotive platform of low emission solutions, and a rail transit core components high efficiency system.



Pursuing Innovation by Technology Empowerment

New Opportunities in the New Era

We will improve systems for scientific and technological innovation. Innovation will remain at the heart of China's modernization drive. We will improve the new system for mobilizing resources nationwide to make key technological breakthroughs. We will boost China's strength in strategic science and technology. We will boost the overall performance of China's innovation system. We will create an open and globally-competitive innovation ecosystem.

—Report to the 20th National Congress of the Communist Party of China

Our Response

Innovation transforms the world, while science and technology shape the future. CRRC remains committed to the original aspiration of becoming "a backbone of the nation and a powerhouse of the industry." We regard scientific and technological innovation as a key driving force for high-quality development. In an endeavor to be a hub of indigenous technologies, we have made strides in green and low-carbon core technologies to shore up our technological shortcomings. We grasp the initiative of future growth by reacting to present issues with independent innovation and building our nation's backbone at Chinese speed.

Our Achievements

- Received approval of **2** national innovation centers
- Presided over or participated in the formulation of **8** international standards
- Completed **3,000** authorized patents, including **1,500** invention patents and **200** overseas authorized patents
- Won the first prize and third prize of 2022 China Standards Innovation and Contribution Award
- Received **1** gold award, **4** silver awards, and **3** excellence awards of the 23rd China Patent Award
- Had **271** skill master studios and model worker innovation studios of various levels



Breakthroughs in Scientific and Technological Innovation

Improving the system of scientific and technological innovation

CRRC places scientific and technological innovation at the core. We integrate and synergize the development of a hub of indigenous technologies, modern industry chain leaders, and the pilot task of building a strong transportation network in China. By further integrating innovation, industry, capital, and talent chains, we seek high-level independence and strength in science and technology as the driving force of national strategic science and technology.

CRRC actively pilots the reform of national science and technology systems and mechanisms, as well as undertaking major national research projects. By improving system of scientific and technological innovation, we promote the reform of science and technology systems and mechanisms, increase efforts in core technologies in key fields to speed up developing major products. We also build a scientific and technological innovation ecology, which is open, sharing, and beneficial to all stakeholders involved. Currently, the Company owns two national innovation centers, 12 national R&D institutions, and 18 overseas R&D centers. In 2022, seven CRRC subsidiaries were included in the SASAC science and technology reform demonstration enterprises. The Conference on High-quality ICT in Science and Technology was held as scheduled.

Stronger top-level planning

- To create a hub of indigenous technologies, CRRC issued the *Special Management Measures for a Decade Development of Indigenous Technologies*, initiating the approval work for 2022.
- CRRC continued to reform the approval of research projects, supported the development of new industries, and planned for 23 research directions in five categories around three pillar sectors and several key sectors.

Greater efforts in building science and technology platforms

- In 2022, CRRC was approved to set up three national key laboratories for power semiconductor and integration technology, heavy-duty fast high-power electric locomotive, and high-speed maglev carrying technology, respectively.

More stringent management of scientific research funds

- CRRC issued the *Notice of Conducting Recap on the Use of Scientific Research Funds*, and carried out the second round of special rectification on scientific research funds, rectifying 31 historical problems and identifying 17 problems.



The world's leading high-speed comprehensive inspection test train leaves the factory for testing

Enhancing the application of scientific and technological achievements

Guided by scientific and technological innovation and fueled by industrial breakthroughs, CRRC speeds up the development of serialized, pedigreed, standardized, and modularized core technologies and key components. From small breakthroughs to system capacity enhancement, we set up a full industrial chain, covering fundamental devices, core components, key systems, and complete vehicles.

CRRC expedites research in major projects

The Company undertook 13 projects in seven directions of the national key R&D program "Advanced Rail Transit," and nine special projects of SASAC. In addition, the performance evaluation on two national key rail transit projects was completed.

CRRC safeguards intellectual property

The Company conducted research on intellectual property trading mechanism. In 2022, CRRC completed 6,000 patent applications, including 4,000 invention patent applications and 500 overseas patent applications; 3,000 patent authorizations, including 1,500 inventive patent authorizations and 200 overseas patent authorizations.

CRRC formulates standards

The Company presided over or participated in the formulation of eight international standards, 25 national standards, and 19 industry standards.

Case

The world's first heavy-duty IGBT power supply for hydrogen generation passes the empirical test

In May 2022, the world's first high-power IGBT hydrogen production power equipment, which was developed by Zhuzhou CRRC Electric, passed the empirical test in LONGi hydrogen energy electrolyzer in Yinchuan City. With high efficiency, little ripples, precise control, a high power factor, a small harmonic of the power grid, a quick system reaction, and reactive power compensation, it is well suited for large-scale, complicated power grids for the generation of green power hydrogen and may significantly increase the energy efficiency ratio of electrolytic hydrogen generation. In addition, using the hydrogen generation electrolyzer as a way of power grid peak shaving may facilitate the future growth of the green power hydrogen generation industry.



Case

China's first rack railway train rolls off production line at CRRC Ziyang

On November 24, China's first rack rail train (electric passenger train) successfully rolled off production line at CRRC Ziyang. In the future, the train will be applied in China's first rack railway between Dujiangyan and Siguniang Mountain, shortening the travel time from five hours to two hours. It is China's first-ever and proprietary train of new standard, filling in China's blank space in the rack rail train sector. This train innovatively adopts a dual-standard traction mode of "wheel track +rack rail", and the maximum running speed is up to 120km/h at the wheel track section and 40km/h at the rack rail section, indicating the train fully meets the DUSI Line's running condition on the slope with gradient of up to 120‰. Moreover, the train applies high technologies such as Beidou /5G IoT autopilot, auto protection, and operation big data memory and intelligent analysis, making the train more intelligent.



Achievements in Intelligent Manufacturing

CRRR has established a world-leading intelligent production line for rail transit equipment and a worldwide advanced manufacturing base for high-speed EMUs via its efforts in intelligent manufacturing. As a result, the core competitiveness of enterprises and China's high-speed EMUs have been enhanced across the board. Together, they serve as demonstration in the field of intelligent manufacturing, and facilitate China's rail transit equipment manufacturing industry towards intelligent transformation and upgrade. Four projects developed by CRRR Sifang, CRRR Puzhen, CRRR TMT, and CRRR Datong were approved by the Ministry of Industry and Information Technology (MIIT) as pilot demonstration projects for the integrated development of next-generation information technology and manufacturing in 2022. The intelligent assembly line of CRRR ZELC was selected by the MIIT among excellent scenes of national intelligent manufacturing in 2022.

Case

CRRR rolls out an autonomous intelligent manufacturing cloud platform

The iMCP cloud platform developed by CRRR Sifang for autonomous intelligent manufacturing has been successfully launched. It is a standard SaaS (Software-as-a-Service) production and operation management platform, based on micro-service architecture and deployed in public cloud. Through digital management and dynamic data collection at links such as production plan, manufacturing technique, production process, quality inspection, warehousing, and logistics, the platform helps corporate users in the manufacturing industry to learn production status in real time and improve production management. This first commercial application marks a breakthrough in CRRR Sifang's independent development and marketing of its next-generation cloud MES products.



Effects in Optimized Operation

Following the strategic path of striving towards breakthroughs in industrial distribution, market expansion, scientific and technological innovation, reform and innovation, management improvement, integration of industry and finance, and Party building, CRRR has been expanding the "Product +" and "System +" market modes. With the aim to present first-class business performance, business structure, management system, corporate image, and Party building, CRRR creates greater value for shareholders and other stakeholders by setting a role model, promoting scientific and efficient corporate management, and improving business quality and efficiency across the board.



Enhancing endogenous vitality

The Three-year Action of State-owned Enterprise Reform concluded with success. Remarkable reform strides were made in market-oriented operating mechanisms. By slashing management levels, bodies, and staff, management effectiveness has been significantly improved. "Inefficient and ineffective assets" and "non-primary business and non-advantageous enterprises and business" have been divested. The reorganization of financial holding and capital companies, as well as the steady integration of brake companies, are both well under way. As a result, corporate vitality has been effectively unleashed, together with significantly increased development momentum.

Improving management

Guided by the management improvement campaign benchmarked against international best practices, CRRR has advanced the Strong Foundation Campaign in a solid manner, stabilizing quality and safety, and consolidating and enhancing compliance management. The Company has penetrated lean management across production lines, projects, and processes. Our management improvement campaign has become a role model promoted by the SASAC.

Actively tapping the market

- CRRR advances steadily in the rail equipment industry by generating demand with efficient supply and attracting local rail and industrial and mining firms such as CEIC
- CRRR taps the urban transport market at full wing with an over 40% market share of standard rail trains
- CRRR expands into a number of strategic emerging segments as a result of a rise in wind power and new materials contracts, and observes contrarian growth in the global market due to rising overseas signings

Protecting Ecological Protection to Secure Lucid Waters and Lush Mountains

New Opportunities in the New Era

We will accelerate the transition to a model of green development. We will implement a comprehensive conservation strategy. We will boost green and low-carbon industries. We will encourage green consumption, and promote green and low-carbon ways of production and life. We will intensify pollution prevention and control. We will make further efforts to keep our skies blue, waters clear, and lands clean.

—Report to the 20th National Congress of the Communist Party of China

Our Response

Adhering to green and low-carbon development, CRRC has taken the lead in proposing carbon reduction goals, exploring environmental protection, energy-saving and low-carbon development models, building green manufacturing systems, and creating green factories. Through these efforts, CRRC aspires to be a leader of green manufacturing, a creator of green living, and a pioneer of green development.

Our Achievements

- 7 subsidiaries (**21** in total) were recognized by the MIIT as demonstration green factories
- 4 subsidiaries (**14** in total) passed the evaluation of green factories in the rail transit equipment manufacturing industry
- RMB **447** million spent on **138** technological transformation projects for environmental protection
- SO₂ emissions declined by **23.75%** year on year to 148.02 tons
- COD emissions declined by **15.22%** year on year to 389.67 tons



Strengthening Environmental Management

CRRRC intensifies environmental performance monitoring and assessment, and inspects subsidiaries operating in the Yangtze River and Yellow River basins to ensure that its environmental management system runs efficiently. In 2022, all CRRRC subsidiaries were certified by the environmental management system, and no major or above serious environmental emergencies occurred.



CRRRC revises and improves management systems

The Company integrated and revised ten energy-saving and emission reduction management systems into the *Regulations on Energy-saving and Ecological and Environmental Protection, the Responsibility System for Energy-saving and Ecological and Environmental Protection, the Rules for Assessment of Energy-saving and Ecological and Environmental Protection, and the Measures for Monitoring and Evaluating Operation of Energy-saving and Ecological and Environmental Protection.*



CRRRC accelerates the promotion and application of its recycling materials trading platform

After organizing 100 central SOEs to conduct research on the management of idle waste materials, the Company drafted the *Research Report on the Disposal Management of Idle and Waste Materials in Central SOEs* and launched the initiative to establish a cross-industry circular economy development alliance. CRRRC has built Yiqipai, a digital platform for the disposal of idle and waste resources, with the aim of locating actual end users. By the end of 2022, the platform had disposed of idle and waste materials worth RMB 4 billion, resulting in an income increase of around RMB 650 million.

Innovating in Green Technologies

CRRRC is committed to green production, low carbon emissions, and environmental protection. We apply low-carbon, zero-carbon, and negative-carbon technologies and achievements to technological innovation and product R&D. We penetrate the technologies across production and management, industrial chain construction, and supplier evaluation in order to develop hydrogen-powered zero-carbon vehicles, promote the use of permanent magnet power technology, and provide green electric energy for Beijing Winter Olympics venues. In this way, we can achieve the ambitious goal of green development through green technologies.

Hydrogen power

As a manufacturer of rail transport equipment, CRRRC specializes in hydrogen-fueled cell applications. With a sustained focus on the effective use of energy, CRRRC Datong has independently built the first hydrogen-powered hybrid locomotive based on technological and equipment advancements. It is a breakthrough in the industrial use of hydrogen energy in the Chinese locomotive industry. And a hydrogen-powered locomotive only consumes half of the energy a diesel locomotive uses for shunting.



The first hydrogen fuel cell hybrid electric locomotive was offline in CRRRC Datong



Permanent magnet power technology

CRRRC's permanent magnet traction system can save up to 30% more energy than the traditional asynchronous motor traction system. The technology and products have gained full coverage in several industries, such as rail transport, wind energy production, marine vessels, and AC frequency conversion. If calculated as per a 30% reduction in total energy consumption, a metro train can reduce daily CO₂ by 1,000 kg and SO₂ by 3 kg, saving about 400 MWh of electric energy annually, equivalent to planting a broad-leaved forest spanning 10,000 m².



Permanent magnet direct-drive electric locomotive

Case

CRRRC develops piggyback transport

As an integrated form of freight transport, CRRRC Qiqihar's rail piggyback transport train seamlessly integrates road and rail freight transit. It allows trucks to drive straight onto the train without decoupling; upon arrival at the destination, trucks may drive directly to the location of receiving, boosting the specialized growth of logistics industry. When piggyback transport amounts to 100 million tons, the train can save 1.6 million tons of fuel oil, 35.73 tons of carbon monoxide, 5.07 tons of hydrocarbons, 13.91 tons of nitrogen oxides, 1.53 tons of particulate matter, and 4.8 million tons of dioxide. By effectively reducing fuel consumption and pollution emissions, the train contributes to environmental protection.



Promoting Energy Conservation Technical Transformation

CRRRC develops and manufactures green products, promotes and applies low-carbon technologies, and adjusts and optimizes the energy structure. The Company has preliminarily formed a green manufacturing system and a carbon peak and carbon neutrality management system, and set up a digital management and control platform, significantly improving resource and energy efficiency. CRRRC advocates green power sources and electrified energy consumption at terminals. By intensifying its research and development endeavors in energy storage technology to run through power generation, storage, sales, and consumption links, CRRRC has created an integrated green power branding system that spans power generation, distribution, storage, sales, and consumption. Further, the Company has instituted a management system for the utilization and development of solar roofing within its subsidiaries in order to install solar panels on roofs and develop related industries in an orderly manner.

CRRRC implements energy conservation technical transformation across the board

CRRRC Datong finished capacity reduction renovation of its 110KV substation and built a new steam-water exchange station, reducing heating energy consumption by 20%. CRRRC Qishuyan put its Phase II energy storage project into operation, saving RMB 700,000 of electricity charges a year. CRRRC Tianjin implemented an intelligent heating system upgrade, resulting in yearly cost savings of RMB 1.76 million and a reduction in carbon emissions of about 2,079 tons.



CRRRC advances solar roofing construction

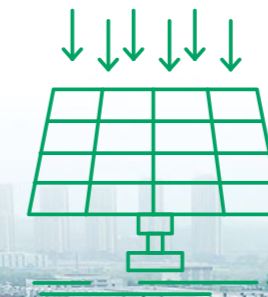
CRRRC held a meeting to discuss the installation of solar panels on rooftops and devised an integrated program to quickly maximize the interests of all parties involved. To ensure that carbon reduction goals are met as scheduled, the Company has continuously enhanced the working mechanism and construction plan, identified the working principle of unifying the responsibilities and rights of resource providers, innovated the development mode, and implemented a market mechanism. In 2022, CRRRC's rooftop photovoltaic produced around 50 GWh of electricity, reducing carbon emissions by approximately 30,000 tons.

50 GWh

Rooftop photovoltaic produced electricity around

30,000 tons

Reducing carbon emissions by approximately



CRRRC capitalizes on the policy to reduce costs and increase efficiency

By engaging in power market operations, optimizing and maintaining power compensation devices, among others, subsidiaries reduced their energy expenses by more than RMB 30 million. CRRRC Datong participated in power transactions of strategic emerging sectors, cutting power costs by RMB 16.44 million; CRRRC Qiqihar engaged in direct power trading and strengthened control over energy quotas, saving more than RMB 7 million.

RMB **16.44** million

CRRRC Datong cuts power costs

RMB **7** million

CRRRC Qiqihar saves more than



Implementing Pollution and Carbon Reduction

CRRC adopts a carbon peak and carbon neutrality strategy to advance green development by reducing pollution and carbon emissions. Through eco-friendly raw materials, clean production, waste recycling, and efficient use of resources and energy, the Company has continuously consolidated green and low-carbon achievements, leading the green transformation and upgrade of the industry.

2022

No major violation or environmental accident occurred



148.02 tons

Sulfur dioxide emissions were

23.75 %

A year-on-year decrease of

389.67 tons

COD emissions were

15.22 %

A year-on-year decrease of

Exhaust emissions management

CRRC regulates the use of activated carbon in the treatment of volatile organic compounds (VOCs) to elevate VOC treatment in companies at all levels. CRRC also improves sewage outlets for comprehensive monitoring of pollution sources, and identifies and addresses issues with automatic monitoring equipment for pollutants.

CRRC Harbin utilized compression heat absorption units to absorb waste heat from China Blue Star Harbin Petrochemical's process circulating water for plant heating with no carbon emissions or pollution.

To further reduce pollutant emissions, CRRC Zhuzhou, CRRC Qingdao Sifang, and CRRC TMT spent around RMB 11.51 million, RMB 6.3 million, and RMB 2.28 million, respectively, to improve the treatment of waste water, particle matter, paint VOCs, and exhausts such as benzene series.



CRRC Dalian eliminated 17 fuel oil heating furnaces, completely concluding CRRC's use of fuel oil.

Green and efficient cleaning and welding integrated automation equipment, unmanned electrostatic spraying equipment and catalytic infrared coating curing equipment developed by CRRC Puzhen reduced the curing cost of single-vehicle coating from RMB 455 to RMB 122.5, saving primer consumption by about 30% and reducing VOCs emissions.

Water resources management

CRRC treats sewage, and recycles wastewater using a reclaimed water reuse system and reverse osmosis membrane treatment. Based on a mutually beneficial approach of water conservation, emission reduction, and wastewater recycling, the Company has further enhanced the efficiency of water resource utilization.

CRRC carried out environmental inspections on companies operating in the Yangtze River and Yellow River basins. The management and control of environmental risks have been strengthened including adhering to the red line, discharging pollutants in accordance with the law, preventing, controlling, and managing solid waste, clean production, basic management, and making corrections based on the results of inspections. These efforts have thoroughly demonstrated CRRC's responsibility and commitment for the conservation and restoration of the Yangtze River and the ecological protection and management of the Yellow River.

Solid waste management

To ensure compliant and legal disposal of hazardous waste, CRRC has completed the record of hazardous waste, signed a hazardous waste transfer and disposal agreement, and took various measures to reduce hazardous waste. According to the green and sharing ethos, CRRC has widened and deepened the use of circular sharing packaging in the industrial chain, therefore achieving the substitution of wood packaging. By the end of 2022, CRRC and its industrial chain partners had used more than 70,000 sets of recycled sharing packaging to substitute 422,000 hardwood boxes throughout the year, saving 160,400 m³ of wood and 288,500 tons of carbon emissions.

CRRC Sifang developed the *Action Plan for Special Remediation of Hazardous Waste and Waste Elimination Action 2022*, launched the "Hazardous Waste Networking + Construction Project", and added weighers, monitoring systems and automatic marking printers to raise the management level of hazardous waste warehousing.

CRRC Zhuzhou implemented the expansion project of temporary storage stations for hazardous waste in the park to fulfill the need for "zoning and classified storage, wind, rain and seepage proof, and organic waste gas collection and treatment".

CRRC Changchun adopted fine management measures such as putty packaging optimization and dismantling of non-hazardous waste parts, reducing hazardous waste by 165 tons over last year.



Improving Development Momentum through Talent-empowered Enterprise

New Opportunities in the New Era

We will implement the workforce development strategy. Cultivating a large workforce of high-quality talent who have both integrity and professional competence is of critical importance to the long-term development of China and the Chinese nation. A wealth of talent is vital to the success of a great cause. We will improve the strategic distribution of human resources and make concerted efforts to cultivate talented people in all fields, so as to create a large, well-structured, and high-quality workforce.

—Report to the 20th National Congress of the Communist Party of China

Our Response

Upholding the people-oriented concept, CRRC builds an equal, fair, and just employment environment with rich resources and broad prospects, striving to create a positive, healthy, diverse, and inclusive workplace which allows employees to grow in happiness. We endeavor to become an excellent employer that makes value for staff, is respected by staff and is full of responsibility.

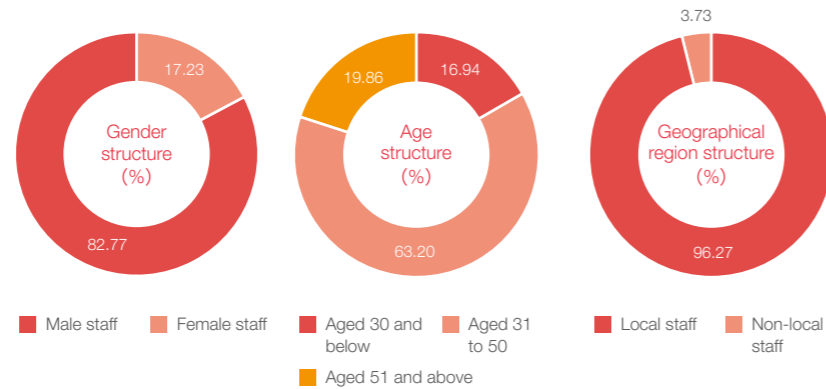
Our Achievements

- Total number of employees **157,237**
- Staff training coverage **100%**
- Workplace safety input about RMB **672** million
- Participants in emergency drills **96,310**
- Zero workplace safety liability accident, zero fire and explosion accident on or above Class One, zero new work-related disease among current employees, and zero cluster infection in the affected region achieved in 2022

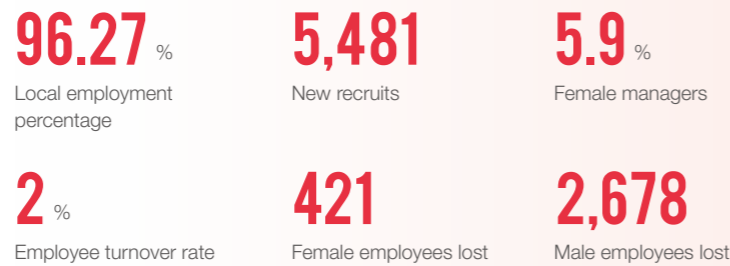


Diversity in Employment

Committed to a diversified employment policy, the Company promotes the diversified and reasonable distribution of talent teams, continuously improving the employee care system to create a happy, warm, diverse, and inclusive workplace. In 2022, the total number of employees was 157,237.



2022



Labor Rights Protection

In strict accordance with the *Labor Law*, *Labor Contract Law* and other relevant Chinese laws and regulations, we insist on equal employment policies and anti-discrimination principles, striving to provide equal employment opportunities to all employees and protecting their legitimate rights.



Labor Norms	<ul style="list-style-type: none"> We have formulated the <i>Management Measures on Labor Contract</i> to define the rights and obligations of both the Company and employees, effectively protecting employees' legitimate rights. In 2022, 100% of employees were working under labor contracts. We strictly check the original ID card and photocopy, prohibiting the employment of child labor and forced labor.
Gender Equality	<ul style="list-style-type: none"> We achieve equality in pay equity, vocational education, technical training, promotion, and participation in the democratic management to protect the rights of female employees in accordance with the law.
Compensation and Benefits	<ul style="list-style-type: none"> In addition to compensation management system and compensation increase system, we introduce post-performance management for all staff, step up efforts to the precise incentive, targeted incentive and all-covered incentive for scientific and technological talents. We also improve the medium and long-term incentive mechanism by clarifying the "ten operation principles". We implement equity incentive plans and make new breakthroughs for listed companies in this regard. We have completed reviewing and approving the equity incentive plans for the listed company of CRRC TMT and for scientific and technological enterprises of CRRC QSYRI and CRRC DaTong. 7 medium and long-term incentive plans have been approved and implemented throughout the year, which achieved full coverage for the "scientific and technological SOE reform" and "double-hundred action" enterprises. The salary filing system has been piloted in six subsidiaries to strengthen dynamic salary monitoring. Through salary-benefit linkage, efficiency benchmarking, salary regulation and other methods, in accordance with monthly statistical analysis of the enterprise's benefit, labor and salary, the Company issues adjusting indicators of caliber labor remuneration on a quarterly basis to implement differentiated remuneration management for heads of subsidiaries systematically, thus optimizing the dual benchmarking mechanism of performance and remuneration. All employees are entitled to paid annual leave, family leave, wedding leave, bereavement leave, maternity leave and other holidays by law. Besides, we improve the dining experience with the well-built coffee shop and multiple varieties of drinks; optimize the choices of physical examination institutions while adjusting the cost of physical examination to meet the individual needs of employees.
Democratic Management	<ul style="list-style-type: none"> We continue to improve the democratic management system with the employees' congress as the primary form. Besides, we listen to staff suggestions and appeals through special democratic life meetings, organization life meetings, special inspection tours, symposiums, and centralized conversation. We also collect opinions in advance on resolutions concerning the vital interests of employees. Based on the sound system of the employees' congress, the system of information disclosure and external disclosure of major issues, the system of equal negotiation and collective contracts, we discuss and deliberate the Company's collective contracts, employee supplementary medical insurance, and other systems through the employees' congress, so that employees can benefit from enterprise reform and development.

Case

Building "Colorful Homes" with staff proposal and facility addition by trade union

To further advance the construction of a new small home with the theme of "Colorful Homes", CRRC QSYRI incorporates key construction contents, including "creating seven models in workshops", "creating seven employee service platforms", and "improving seven regional functions" into its implementation plan, serving as key indicators for Top 4 projects of "decency, care, comfort, and happiness". Regarding facility configuration, CRRC QSYRI fully listens to staff's opinions, adopting the mode that some employees "propose requirements" and the trade union "meet their demand". Based on "seven standard equipment", including conference tables, chairs, and work desks, CRRC QSYRI optionally selects ultrasonic glasses cleaning machines, shoe polishing machines and other facilities in line with the needs of staff. By doing so, CRRC QSYRI properly solves the rest, changing clothes and activity problems of front-line employees and significantly enhances their sense of happiness and gain. At the employees' congress in 2022, the democratic evaluation satisfaction rate reached 99.5%.



Health and Safety

On the basis of laws and regulations including the *Workplace Safety Law* and the *Law on Prevention and Control of Occupational Diseases*, the Company has improved its occupational health and safety management system, built a highly distinctive "CRRRC Safe Building" system to actively promote the development of CRRRC health management models and establish CRRRC's "Health Tree" model, thus creating a secure workplace for employees as well as safeguarding their health and safety.

Our future goals for improving health and safety performance

Accident control goals

We will eliminate major and above workplace safety accidents, strictly control workplace safety liability accidents. During the "14th Five-Year Plan" period, compared with the "13th Five-Year Plan" period, general workplace liability accidents down by more than 20% year on year, and related party fatalities down by more than 20% year on year. We strive to continuously achieve the "three zero" safety goal of "zero liability accidents, zero new work-related disease among current employees, zero fire and explosion accident on Class One, or other major impact accidents".

Occupational health goals

By 2025, the level of occupational health control will be significantly improved, with 100% occupational hazard reporting rate, 100% occupational health examination rate for personnel exposed to hazards, over 90% pass rate detected in toxic and hazardous workplaces, and zero new work-related disease among current employees.

Key Performance Indicator	In 2020	In 2021	In 2022
Work-related fatalities	0	0	0
Rate of work-related fatalities (%)	0	0	0
Workplace safety input (RMB million)	903	847	672
Days lost due to work-related injuries (day)	2,285	1,271	1,385
Participants in workplace safety training	403,395	480,949	464,064
Safety emergency drills (session)	2,184	2,637	2,569
Participants in emergency drills	87,260	109,348	96,310

2022

1,385 days lost due to work-related injuries

Zero workplace liability accident, zero fire and explosion accident on or above Class One, zero new work-related disease among current employees, and zero cluster infection in the affected region achieved in 2022

Compared to the previous three years, the rate of minor accidents has decreased by **64%**, the number of fatalities has decreased by **100%**, and new work-related disease among current employees has decreased by **100%**. We complete the indicators far beyond the established targets.



Implementing Safety Responsibilities

- The *Regulations on Safety Management of Related Parties* have been issued to clarify the management standards for Class A and Class B related parties and regulate the safety management agreement templates for 10 major categories, popularizing the "13444" related party safety management model, which ensures the strict admission of related parties.
- To ensure the full implementation of "three management and three musts", we randomly inspect the safety responsibilities of senior executives and middle-level employees through online examinations and live Q&A, thus promoting departments and leaders of production, process, equipment, and technology to fulfill their duties.

Building Safety Teams

- In addition to the standardized, normalized, and facilitated safety team, we have established a CRRRC safety management expert pool and reserve talent pool, in which 12 gold medal safety lecturers and 31 excellent safety lecturers were selected, and 9 safety expert workstations were set up to continuously cultivate a young, professional, and international safety team.

Identifying and Rectifying Risk

- We incorporate safety into the process work, promoting the process and design departments to identify risks from the industry source, thus reduce potential risks.
- We have conducted safety inspections, achieving full coverage of CRRRC's 1000 points safety rating evaluation. A total of 79 subsidiaries have been inspected, and 7,286 issues have been identified, all of which were rectified. Serial special rectification inspections were carried out 23 times, including limited space, equipment inspection and maintenance, work at heights, and road traffic.

Building Healthy Enterprise

- Together with the China Academy of Safety Science and Technology, we have conducted the "Promoting the Health Enterprises and Conducting Occupational Health Management Certification Training Course" activity and organized 122 leaders and business supervisors from subsidiaries at all levels to participate in the training.
- We have signed the *Responsibility Letter of Benchmarking for Building Healthy Enterprises* with CRRRC Dalian, CRRRC Sifang and other 7 subsidiaries.
- The "CRRRC Role Models" has been set throughout the Company.
- As typical "healthy enterprises", 15 subsidiaries, including CRRRC Dalian, CRRRC Puzhen, and CRRRC Meishan, have won this honor in their regions.
- Taking the initiative to assist suppliers in formulating plans for Covid-19 prevention and control, as well as preparing supplies, we have assisted suppliers in workplace safety, thus creating a safe supply chain.



Broad Development Space

By launching the “Five Projects” to empower CRRC with talents, we have unblocked the career development channels for employees, which realized human resources flow and allocation in an orderly and reasonable way. We strive to improve the talent training system, enabling employees to display their talents on the CRRC stage.



CRRC holds a meeting on talent work

Leading Project

- The *Several Measures on Continuously Deepening the Construction of the Top 5 Leading Groups and the Implementation Plan on the Selection and Cultivation of Hundred Talents Plan for Building a Enterprise Leadership Echelon* have been issued, which are conducive to strengthening the management of cadre selection and appointment, strictly promote the promotion and demotion of employees, and explore new ways in constructing the leading groups and selecting reserve cadres.
- We adjust the posts of 380 cadres with a promotion of 36 people. The third outstanding young cadre selection of CRRC has been organized, in which more than 440 excellent middle and senior management personnel of first-class subsidiaries received training.

Talent Project

- We build a platform for gathering high-end talents and step up efforts to introduce overseas talents while deeply enhancing the recruitment of domestic graduates. This has enabled us to deepen the integrated development of industry, universities, research, and enterprises.
- 3,245 graduates were signed up for the year. By organizing the “Future Star” internship recruitment, we have recruited more than 110 interns and signed up 90 overseas college graduates.

Empowerment Project

- To promote vocational education reform, we formulate the *Implementation Plan on the Selection and Cultivation of Hundred Talents Plan for Building a CRRC Technology Talent Echelon*, and the three-year action plan for improving the quality of skilled talents. As the only central SOE initiator, the Company join the BRICS National Vocational Education Alliance. The *Measures for the Administration of Core Talents at CRRC* have been revised to promote talent evaluation, strengthening the development of curriculum systems and training bases.
- The Company has developed 29 courses in the “CRRC creates world-class enterprise management practice” series, with 117 people from 25 subsidiaries selected into the scientific and technological talent echelon, 11 young backbones were recommended to study on-the-job engineering doctors, 1 person applying for the China Skills Award, 3 for national technical experts, and 4 for central SOE technical experts. Over 1,600 vocational college students completed skill assessments with licenses throughout the year. We organized the annual skill level certification theoretical examination, covering more than 9,200 people in 84 categories.

Incentive project

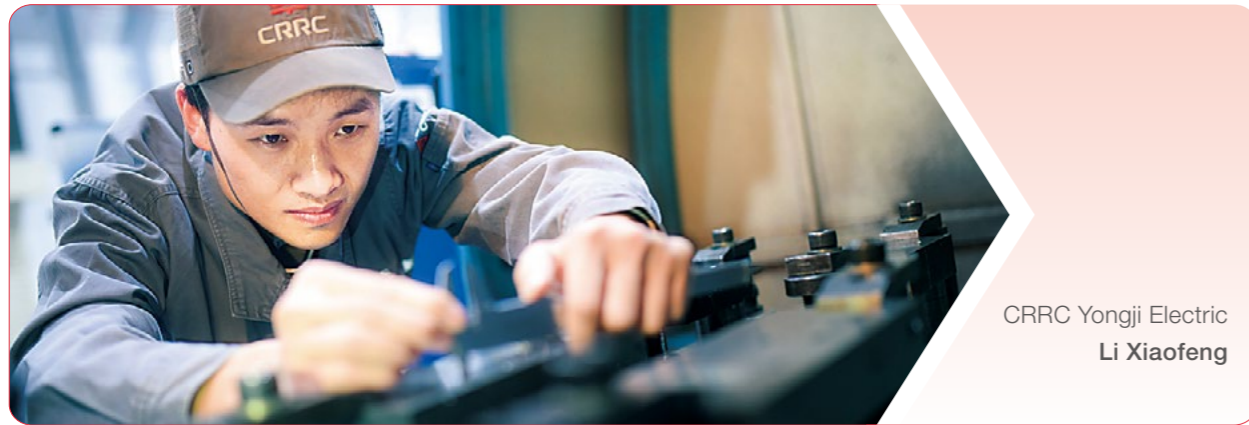
- We have strengthened the top-level design of incentives for scientific and technological talents and salary control, making breakthroughs in medium and long-term incentives, which optimized the incentive mechanism system for key talents. We have completed reviewing and approving the equity incentive plans for listed companies of CRRC TMT, and technological enterprises of CRRC QSYRI and CRRC DaTong Huayang.
- The salary filing system has been piloted in 6 subsidiaries. 7 medium and long-term incentive plans have been approved and implemented throughout the year, with the expected stimulated staff of nearly 2,000, which achieved full coverage for “scientific and technological SOE reform” and “double-hundred action” enterprises.

Double Distinction Project

- To fully implement organizational reform, “two decisions and two distinctions” and “two guidance”, we optimize property rights and management levels, focusing on reducing the staffing and personnel in various management positions. By studying the traction relationship between human resource efficiency indicators and salary allocation of different business sectors, we have prepared the labor employment plan for 2023-2025. The results of the market-oriented operation mechanism reform were far beyond expectations.



Passing on experience of CRRC Taiyuan Master Studio



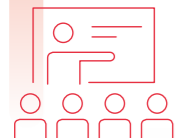
CRRRC Yongji Electric
Li Xiaofeng



CRRRC Datong
Zhang Zhihe



CRRRC Changchun
Hu Junxiang



Key Performance Indicator

In 2022

Percentage of employees trained by gender (%)	Male	100
	Female	100
Percentage of employees trained by management (%)	Management	100
	Non-management	100

100 %

Staff training coverage rate

231,000 person-times

Total attendance of staff training

Employee Care

Committed to enhancing employees' sense of happiness and gain, we balance their work and life. A variety of cultural and sports activities are organized to meet their spiritual needs. In addition, we regularly send care to needy and female employees and those on the front line.

Caring about front-line employees

- Each season and each holiday, we provide care for front-line workers.

Caring about female employees

- We offer exclusive benefits and blessings to female employees on Women's Day.

Helping needy employees

- We coordinate with Haidian District government to mobilize 174 units of public rental housing for talents to solve the housing problem of employees.
- We solve the schooling of 30 children from the headquarters and subsidiaries in Beijing through coordination, which is the most concern of employees.



A variety of cultural and sports activities

Improving the People's Livelihood to Build Harmonious Communities

New Opportunities in the New Era

To realize, safeguard and advance the fundamental interests of our people, we must do everything within our capacity to resolve the most practical problems that are of the greatest and most direct concern to the people. We will stay engaged with our people and their communities, adopt more measures that deliver real benefits to the people and win their approval, and work hard to resolve the pressing difficulties and problems that concern them most. We will improve the basic public services system to raise public service standards and make public services more balanced and accessible, so as to achieve solid progress in promoting common prosperity.

—Report to the 20th National Congress of the Communist Party of China

Our Response

We earnestly fulfill our political, economic and social responsibilities and inject our momentum into rural vitalization to improve living conditions and advance development in rural areas. Meanwhile, we also take an active part in such fields as community education and health care and voluntary services, contributing our efforts to community development.

Our Achievements

- 10 pairing assistance programs implemented
- RMB 17.27 million assistance fund invested
- RMB 32.385 million agricultural produce from targeted assistance areas purchased by CRRC
- RMB 6.955 million products from targeted assistance areas sold under CRRC's help
- 560 grassroots cadres trained



Contributing to Common Prosperity

Fully leveraging our strengths and characteristics, CRRRC has consolidated and expanded achievements in poverty alleviation and boasted great development potential for Jingxi City and Napo County of Guangxi Zhuang Autonomous Region and Maiji District and Gangu County of Gansu Province, so as to advance rural vitalization across the board. In 2022, we carried out 10 pairing assistance programs, introduced 2 new programs and provided assistance for 2 leading enterprises and 5 cooperatives helping 221 people gain residency and employment.



A Persistent Perseverance of Exchanging “Sincerity” for “Revitalization” for Many Years and CRRRC’s Assistance for Building Industrial Parks with Agricultural Features were listed as excellent cases and demonstration programs in the “Blue Book on Central State-owned Enterprises’ Contribution to Rural Vitalization (2022)”.



Guoping Village is rated as a model village under pairing assistance program

2022

CRRRC has invested a total of RMB **17.27** million of assistance fund, introduced RMB **1.7** million of assistance fund, trained **560** grassroots cadres and **158** leaders of rural vitalization and **633** technical personnel, purchased RMB **32.385** million worth of agricultural produce from targeted assistance areas, and helped farmers sell RMB **6.955** million worth of products.



Continuously improving the system of pairing assistance

CRRRC has taken its pairing assistance as the firm and unshakable political task and worked actively to promote organizational guarantee and whole-process supervision. Besides, we have fully integrated the strengths of Party building with pairing-up support, continuously improved the system, and strengthened the implementation of pairing-up support.

Ensuring organizational guarantee

- Increasing a leading group leader to implement the "dual group leader" system; making the Company Office serving as the Pairing Assistance Office and setting up Pairing Assistance Department.
- Forming a three-tier working mechanism of pairing assistance under which the leading group make decisions in a holistic and coordinated manner, competent departments are responsible for organization, and the cadres implement the tasks.

Strengthening process control

- Adhering to a survey-and-inspection mechanism under which leading officials and members visit targeted counties for onsite survey and inspection.
- Establishing a mechanism of regular meetings and reporting so as to promote the implementation.
- Improving the supervision mechanism. A total of 6 on-site inspections were conducted throughout the year, resulting in 6 reports and 14 suggestions.

Selecting pairing assistance personnel

- Continuing to select cadres with political integrity, fine conduct and comprehensive strengths and taking pairing assistance as a tool for training cadres.
- Formulating the *Management Rules for CRRRC Dispatched Temporary Cadres* and paying more attention to their work and life.

Integrating strengths of Party building

- In line with the new approach of “giving full play to the role of departments through Party building in order to seek common development”, starting pairing assistance between the primary-level Party branches of the subsidiaries and the targeted counties and villages, consolidating achievements yielded in these five targeted areas.
- CRRRC Lanzhou, underpinned by the Party branch of Shiping Village, Gangu County, has invested RMB 1.5 million into the construction of straw burning particle processing production line.
- Party branches of CRRRC Nanjing Puzhen and ALSTOM have signed joint construction agreements with Party branches of Kangcheng Community, and Geng Village, Jingxi City respectively, extended regards to local people and helped strengthen primary-level Party building in these two villages.



Lou Qiliang, President of CRRRC, is conducting a survey on agricultural products

Boosting the industrial development

Regarding industrial support as the driving force for the development of local economies and increase in rural incomes, CRRC has actively explored new ways for industrial development and intensified efforts to transforming small products into big industries and bases so as to accelerate the development of assisted industries across the board.

Advancing industrial support



- Building a new oil mill on the basis of the rich resources of Maijiaya Bay Village.
- Building a new CRRC agriculture park in Pohe Township, Guangxi Province which features the cultivation of 350 mu of passion fruit. This initiative seeks to extend industrial chains and increase the income of 1,530 people from 405 households across 12 villages.
- In order to exploit the full potential of Jingxi's tourism resources and strengths in transportation, CRRC Nanjing Puzhen and Jingxi City government are planning to collaborate on a tourism rail transit demonstration line project, with an investment of approximately RMB 1.1 billion, which will effectively promote the development of the tourism industry in Jingxi City.
- In 2022, RMB 8.15 million was input for industrial support initiatives.

Supporting consumption-driven campaigns



- Engaging in activities. On the occasion of the "Week of Central SOE' Support for Consumption-driven Initiative" organized by SASAC, we make full use of our official website, official Wechat accounts and other media channels to widely publicize and mobilize the active participation of our subsidiaries, employees and suppliers to sell RMB 1.47 million of agricultural products.
- Encouraging staff-oriented consumption. Confronted with COVID-19 and natural disasters, CRRC issued the *Notice on Promoting Procurement for Consumption-driven Assistance in 2022* to clarify the procurement quantity and redouble efforts in this aspect. In the same year, 22,000 sets of work clothes worth RMB 2.38 million were purchased. 518 trees were adopted by our employees in the "Fruit Tree Adoption" program. The total value of produce from targeted counties through direct purchasing and consumption-driven support amounts to a total of RMB 39.34 million.

Striving for a better life

Translating the aspirations for a better life as a momentum for rural vitalization, CRRC prioritizes ecological environmental management, infrastructure improvement, and the enhancement of rural living conditions to build a harmonious and beautiful new countryside.

Case Building a beautiful, livable countryside to satisfy people with great harvest of persimmon

On the basis of the resource endowment of Guoping Village, CRRC has helped build a beautiful and livable countryside with the theme of "Persimmon Park", exploring a new way for rural development in the arid mountainous areas to the north of Wei River.

CRRC focused on landscaping the roads and villages, renovating and upgrading the appearance of all the houses as planned, and conducted a campaign to improve rural living environment such as removing 25 tons of accumulated trash, demolishing 6 dilapidated walls, building 3 new storage spots for firewood, and distributing 112 recycling bins while renovating 12 household toilets, constructing a new parking lot and a public toilet, and repairing 1,293 m² of roads at the entrance to village. Furthermore, local characteristics has been highlighted, such as inaugurating the protection of 87 ancient persimmon trees, including 25 that are over 300 years old. Relying on the centralized geographical location of age-old persimmon clusters, we developed a persimmon-themed brick-carving cultural corridor to enable villagers to feel connected with their hometown. Efforts were also taken to improve supporting facilities and combine the creation of beautiful countryside with the growth of the collective economy through the cultivation of crops such as rose grapes and jujubes, fruit and vegetable picking gardens and the construction of amusement facilities and reward-filled supermarkets. All of these along with introduction of local snacks and barbecues have been attracting tourists from urban and suburb areas, stimulating the sale of produce and providing multiple income channels for local people.



Improving infrastructure

- RMB 1.9 million was invested into the project construction aimed at promoting the effective usage of water resources for both human consumption and livestock use, benefiting 832 residents from 169 households in Miguchuan village, Gangu County.
- Over RMB 3 million was used for home renovation, wall painting, and upgrading of road and drinking water systems in Shetang Town, Maiji District. A total of 112 households, encompassing 518 individuals, have received direct benefits from these upgrades.
- RMB 350,000 was allocated to safe drinking water projects of 150 cubic meters, benefiting 243 people from 57 households.

Developing cultural sectors in rural areas

- Building on the strengths of the 3A-grade tourism resources of Gupo grassland, we fortify the village's tourism industry and increase its appeal to tourists. A total of RMB 1.6 million was invested to enhance the living environment of Waquanyu Village, Gangu County, which was rated as a "National Forest Village".
- A sum of RMB 500,000 was dedicated to the construction of campus cultural corridors for Jingxi Ethnic Middle School to build a harmonious campus.
- To establish a positive cultural atmosphere, the village square, serving as a "Rural Grand Stage", was erected in Guoping Village, Maiji District.
- CRRC Lanzhou organized a cultural performance event titled "Warmly Welcoming the 20th CPC National Congress and Unwaveringly Following the Party" in Shiping Village, Gangu County, thus enriching the cultural experience of the masses. Moreover, the establishment of village regulations and agreements has guided villagers towards attaining prosperity by hard work and changing outdated customs, augmenting their sense of cultural fulfillment.

Nurturing talents

- The fifth "Swan Project" aimed at enhancing the leadership capabilities of primary-level cadres in targeted assistance areas, hosted in the training center by CRRC Changzhou attracted 93 participants from 4 counties of 2 cities and Tibet.
- On the basis of utilizing CRRC's advanced technologies and management expertise and incorporating the business principles of the prosperous Jiangsu and Zhejiang regions, CRRC also invited experts to provide field-based technical training to further enhance the knowledge and skills.



CRRC is conducting the campaign of learning from the model soldier Lei Feng – "Focusing on Children's Development and Supporting Rural Vitalization" in Li Qianzhuang Village, Tuofeng Township, Hunyuan County, Shanxi Province.

Supporting Community Development

In order to sustain strong and close ties with communities, CRRC actively organizes and participates in a diverse range of charity activities and voluntary services in local communities to give back to the society, contributing our efforts to people's well-being and social harmony.

Strengthening communication with communities

We host the open day events - "Introducing Fans to the CRRC" to invite people to visit CRRC, experience the development of rail machinery and equipment and learn more about the new generation of green and intelligent rail traction technology, thus enhancing public awareness and bringing public and CRRC closer.

Case Technology fascinates "little scientists" in CRRC Xi'an Yonge

On August 6, 2022, more than 30 primary and secondary school students were invited to visit the company on the "Promoting the Spirit of Scientists and Cultivating the Future Star of Science" technological open day event hosted by Xi'an Yonge Electric Co., Ltd., a subsidiary of the CRRC. In the lecture of science communication, they competed with each other to answer relevant questions about the sources of high-speed rail and wind power generation based on the scientific knowledge they learned on the spot, and had an "intensive interaction" with technical experts. This place has played a leading role in promoting the spirit of scientists and popularizing knowledge of rail transit and energy equipment.



The 11th "Introducing Fans to the CRRC" event by the CRRC Zhuzhou Locomotive



CRRC Datong invites pre-school children of employees to increase their exposure to the history of rail transit during the visit to the factory history museum



"Introducing Fans to the CRRC" open day

Engaging in disaster relief

CRRC has been committed to its founding mission and belief of "unwaveringly following the Communist Party of China (CPC)" to better serve the people, make contribution to the society and take responsibility for the country. We have actively engaged in public welfare undertakings and done our utmost to help fight against the pandemic, demonstrating CRRC's responsibility.

Case CRRC assists the operation of Mainland-Hong Kong trains

In March 2022, the first train, labelled "The central government stands with Hong Kong to fight against COVID-19", was loaded with about 50 tons of medical supplies and successfully arrived at the Luohu Railway freight yard in Hong Kong from the Pinghu National Logistics Hub in Shenzhen, marking the official opening of railway transportation for the mainland to ensure the stable supply of materials. The traction locomotives at both ends of the train are Dongfeng 4 diesel locomotives manufactured by CRRC Dalian. These trains to Hong Kong effectively shorten timespan across borders, and further ease the pressure of cross-border transportation by highway and waterway.



Case CRRC joins hands with upstream and downstream partners of the industrial chain to actively engage in social welfare activities

As a leading enterprise, CRRC ZELC has founded the CRRC ZELC Fund (hereinafter referred to as the Fund) and collaboratively promoted the development of "public welfare culture" and "public welfare brand" in the rail transit equipment industry along with over 160 enterprises in the upstream and downstream such as UnionScience, Zhuzhou GoFront, NEVC, CRRC Timly Forge.

Since 2016, the "Public Welfare Assistance for Serious Diseases and Disasters" project has been launched and implemented, with a cumulative expenditure of more than RMB 1.1 million, to assist employees or family members whose work and life have been significantly affected by serious diseases and disasters, benefiting more than 108 families. Under the "Caring Service" project, we allocated over RMB 1 million to support more than 150 employees by helping their family members who cannot take care of themselves due to busy work, mitigating work-life conflicts. Furthermore, we also took an active part in ecological protection. During the "World Water Day" event held in Zhuzhou, the Fund provided financial support to help release over 10,000 kilograms of various types of fish fry that meet quarantine standards. Seven enterprises have been hired as the first batch of "River Chiefs" in Zhuzhou, injecting new momentum into ecological environment protection. (A river chief, as the name suggests, will be responsible for the management and protection of watercourses, as well as preventing pollution and restoring the water ecology.)



Improving Governance, Integrity and Compliance

New Opportunities in the New Era

As economic globalization progresses, China has expedited the introduction of measures for deepening the reform, market rivalry has intensified, and businesses have sped reform towards transformation. At the same time, listed companies are vying to gain recognition from the capital market. Non-financial information has been the focus of investor attention as the demand for ESG information disclosure in the capital market continues to rise.

—Report to the 20th National Congress of the Communist Party of China

Our Response

CRRC enhances its business operations to adhere to legal, regulatory, and ethical standards. The Company has consistently advanced transformative development to improve quality and efficiency, and bolster competitiveness, achieving sustainable development for itself, society, and the environment.

Our Achievements

- Board meetings: **6**, Reviewed issues: **37**
- Full-time external directors: **21**
- Disclosed documents: **451**



Governance Structure

As an A+H company listed on both the Shanghai Stock Exchange (SSE) and the Hong Kong Exchanges and Clearing Limited (HKEX), CRRC has been committed to improving its corporate governance according to global corporate governance norms. In accordance with the *Company Law*, the *Securities Law*, relevant provisions of China Securities Regulatory Commission (CSRC), the *HKEX Listing Rules*, the *Rules Governing the Listing of Stocks on Shanghai Stock Exchange*, and the *Code of Corporate Governance for Listed Companies*, CSRC has developed various rules and regulations such as the *Articles of Association*, the *Rules for Full-time External Directors*, the *Notice on Further Regulating Matters Related to Building the Board of Directors of Subsidiaries*, and the *Interim Measures for the Evaluation of the Construction of the Board of Directors of Subsidiaries*. As a result, a governance structure with scientific division of labor, responsibilities, effective checks and balances, and an effective internal control system have been established. In 2022, the Board of CRRC was rated "Outstanding" by SASAC for the fourth year in a row.

Under its Board of Directors, CRRC sets up four special committees for strategy, investment, nomination and remuneration, composed of directors. In addition to improving its system of full-time external directors, CRRC holds regular meetings of full-time external directors to facilitate communication. The Company has built a "Pool of 100 External Directors", bolstered management of external directors, and implemented the annual comprehensive evaluation. CRRC has pushed for the professional management system on the premise of standardized Board operations. To present, 116 professional managers have been engaged by 31 subsidiaries.



2022

6

Board meetings

37

Reviewed issues

21

Full-time external directors

Ethical Management

CRRC takes compliance with laws, regulations and social norms as the cornerstone for sustainable corporate development. In its pursuit of good corporate citizenship, the Company practices the rule of law, builds a compliance management system, and adheres to a variety of business ethics.

Legal and compliant operation

CRRC strengthens its planning and top-level design for the rule of law. The Company has released the *14th Five-Year Plan for the Rule of Law* and implemented the *Eighth Five-Year Plan for Increasing Public Knowledge of the Law*, and encouraged first-level subsidiaries to develop their own Compliance Planning on 14th Five-Year Plans for the Rule of Law in light of the actual situation. To solidify the organizational foundation for compliance management, CRRC thoroughly practiced deployments pertaining to the "Year of Enhancing Compliance Management". A chief compliance officer was equipped to be responsible for organizing and coordinating compliance management. The Company prepared the *Signature List of Compliance Review by Chief Compliance Officer (for Trial Implementation)*, rigidly adopted the signature system of compliance review opinions for major decisions, and staffed with compliance administrators to ensure that compliance requirements effectively penetrate the front line of business. CRRC designed a hierarchical compliance management structure made primarily of a basic system, a particular system, a special business system, and a guide in important areas for compliance management. Compliance risk identification and early warning, compliance review, and compliance risk reporting mechanisms were all operationally sound. Middle-level or above managers as well as business personnel and managers in key areas signed the *Employee Compliance Commitment* together. As a result, the philosophy that "compliance is our core competitiveness" has gradually gained popularity. CRRC issued the *Implementation Plan for the Reform of CRRC Risk Management and Internal Control Mechanism System*, and enrolled 52 key risk control specialists into the risk control sub-center. The Company carried out confidentiality training and legal compliance training in a down-to-earth manner, organized network security drills, guarantees and training, and conducted annual network security training. As a result, employees' awareness of legal compliance, risk prevention and data security have been significantly enhanced. In 2022, CRRC provided 6 trainings on legal compliance and 4 network security lectures.

Anti-corruption

On the basis of strictly abiding by the *Anti-Corruption Law*, *Anti-Money Laundering Law* and other relevant laws and regulations, CRRC convened a Party building and anti-corruption meeting and signed a letter of responsibility for Party integrity building. The Company held talks with leading cadres on integrity building and two admonitory meetings for cadres. The Company also carried out the "100 Discipline Inspection Cadres Stress Discipline" activity and distributed the *Cases of Admonitory Education for CRRC Cadres*. Through these endeavors, CRRC has enhanced employees' awareness of honesty and self-discipline, deepened anti-corruption and integrity building, and maintained an atmosphere of integrity within CRRC. CRRC increased oversight of the bidding process in order to guarantee unbiased and fair supplier screening. By streamlining channels for complaints and reports, and developing a mechanism to safeguard whistleblowers, CRRC Disciplinary Committees processed a total of 307 complaints and reports at all levels.

Protection of Shareholders' Rights

CRRC collaborates with the regulator's increasingly strict requirements for business information disclosure. By streamlining information communication channels and optimizing the information disclosure process, the Company has effectively guaranteed accurate and standardized disclosure of relevant information, continuously improving the transparency of business operations.

2022

Disclosed documents: 451

Trainings organized by the regulator for directors, supervisors, executives, and relevant personnel from the headquarters: 40+

Regulatory questionnaires and solicit opinions filled: 50+

Analysts connected in 4 performance telephone conferences and 3 performance releases: approximately 200

"A" rating in the Shanghai Stock Exchange's evaluation on information disclosure: 7 years in a row; International top awards for annual reports: Several



Improving market value management

- CRRC held a regular market value management meeting on a quarterly basis, and established a platform for interactive exchanges with the capital market, financial PR companies and relevant departments of the Company. In 2022, 4 market value management meetings were held
- CRRC amended the *Implementation Measures for Market Value Management of China CRRC Co., Ltd.* in compliance with regulatory standards, with the goal of maximizing the value of the Company and its shareholders, and continually enhancing its market value

Deepening transparent operation

- CRRC revised 4 related systems, namely, the *Management System of Insiders with Confidential Information*, the *Management System of Information Disclosure Suspension and Exemption Affairs*, the *Information Disclosure Management Measures*, and the *Implementation Rules for Information Disclosure Management Measures*
- CRRC issued timely and accurate reports on a regular basis to convey its business performance and core competitiveness to the capital market, therefore enhancing investors' understanding and recognition of its development
- CRRC timely issued daily media monitoring information, capital market daily news and PR event analysis, tracked stock prices, and analyzed shareholder structure, providing directors, supervisors, and executors with timely and accurate information support

Managing investor relations

- CRRC revised the *Management Measures for Investor Relations of China CRRC Co., Ltd.* to regulate the development of investor communication channels and investor relations
- CRRC organized 4 performance telephone conferences and three performance releases, and brought together around 200 analysts to discuss business and order operations, as well as interacting with existing and potential investors by phone or email
- CRRC made calls with or visited major institutional investors on a regular basis to maintain a benign relationship them

Outlook on 2023

2023 marks the first year to fully implement the principles of the 20th CPC National Congress, and a crucial year for proceeding with the 14th Five Year Plan. Guided by the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, CRRC will practice the principles at the 20th CPC National Congress and the Central Economic Work Conference. Under the work keynote of seeking progress while maintaining stability, we will strive towards breakthroughs in industrial distribution, market expansion, scientific and technological innovation, reform and innovation, management improvement, integration of industry and finance, and Party building centered on high-quality development, and stimulate three driving forces, aiming to be a world-class enterprise. We will demonstrate our new responsibilities and new actions in the great practice of Chinese modernization.

Seeking new development in primary businesses

We will fully integrate into the strategy of building national strength in science and technology, manufacturing, transportation, high-quality products and cyberpower. We will advance "Technology +" and "Product +" modes in three transport networks, two transport circles, sophisticated and safe key transport equipment, convenient and smooth joint passenger travel, and multimodal transport of goods. We will plan landmark products and system solutions methodically.

Improving Party building onto a new level

We will fully implement the great new project of Party building in the new era, improve the system of exercising full and rigorous governance over the Party, guarantee oversight and governance duties for the Party, consolidate and improve Party building achievements, and lead the way in attaining new advances with the establishment of "a more prominent role" of Party building.

Embarking on a new journey of reform and innovation

By intensifying the reform of scientific and technological innovation systems and mechanisms, we will integrate innovative elements, improve the innovation system, escalate the innovation capacity, support business development, cultivate high-end talent, develop leading product technologies, and stimulate innovation vitality. We will render robust assistance by fulfilling all reform and development tasks, advancing the 14th Five-Year Plan, accelerating our efforts to become a world-class enterprise, and promoting high-quality development.

Practicing responsibility to build a new image

In active response to climate change, we will explore new models of environmental protection, energy-saving, and low-carbon development to help achieve carbon peak and carbon neutrality goals. We will launch special campaigns such as the Year of Safety Management Improvement, care for the growth of employees, implement the personnel training plan, and provide a safe, healthy, harmonious workplace. We will continue to support rural vitalization by supporting philanthropy and using our technological and platform advantages. Together with our stakeholders, we will create the comprehensive economic, social, and environmental value for the society.

In the new age, CRRC is poised to embark on a new adventure and seize new opportunities. Under the guidance of the CPC Central Committee with Comrade Xi Jinping at the core, we will break new ground for high-quality development. Looking forward, CRRC will make new and greater contributions to building a modern socialist China in all respects and advancing the rejuvenation of the Chinese nation on all fronts through Chinese modernization!



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		A1.4	Undisclosed	
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	A1.6	P48		
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Feedback from Readers

Dear readers,

Thank you very much for reading the 2022 Social Responsibility and Environmental, Social and Governance Report. We pay great attention to and expect to hear your feedback on CRRC's management, practice and reporting of social responsibility. Your comments and suggestions will help us to continue promoting the management and practice of corporate social responsibility. We look forward to your reply!

Multiple-choice Questions (please tick in the appropriate box)

- Does the Report reflect the significant influence of CRRC on economy, society and environment?

Yes Somewhat No
- Do you think the relation analysis of stakeholders hereof and CRRC is accurate and comprehensive?

Yes Somewhat No
- Was the information provided in this report comprehensive?

Yes Somewhat No
- Was the information provided in this report readable?

Yes Somewhat No

Open Question

Please address any opinions and suggestions on the 2022 Social Responsibility and Environmental, Social and Governance Report.

Your Contact Information

Name: _____

Company: _____

Address: _____

Tel: _____

E-mail: _____

Fax: _____