



CRRC ZHUZHOU INSTITUTE CO., LTD. WIND POWER BUSINESS UNIT

2024 SUSTAINABILITY REPORT



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About This Report

Description of the Report

This is the first sustainability report issued by the CRRC Zhuzhou Institute Co., Ltd. Wind Power Business Unit (hereinafter referred to as "Wind Power Business Unit" or "the Unit" or "We", with its parent company abbreviated as "CRRC Zhuzhou Institute" or "the Company", and the ultimate group enterprise known as "CRRC" or "the Group Company"). It provides insights into our guidelines and practices in the areas of environmental protection, social responsibility and corporate governance. Focusing on the issues of concern to our stakeholders, we have demonstrated in detail how the Unit is actively practicing the concept of sustainable development in the dimensions of Environmental, Social and Governance. This report has been strictly reviewed by the top management of the Unit to ensure that its contents are accurate, true, reliable, comprehensive and complete, which fully reflects our high attention and responsible attitude towards the quality of the first sustainability report.

Report Scope

This report shows the specific performance and practical measures of CRRC Zhuzhou Institute Wind Power Business Unit (Area 58, Liyu Industrial Park, Tianyuan District, Zhuzhou City, Hunan Province) in the field of Environmental, Social and Governance (ESG). Unless otherwise specified, this report covers the period from January 1, 2024 to December 31, 2024 (hereinafter referred to as "reporting period", "current year" and "2024"). At the same time, based on the continuity and comparability of the report, some data and information are not limited to 2024.

Preparation Basis

This report is prepared with reference to the GRI Standards issued by the Global Reporting Initiative (GRI) and the United Nations Sustainable Development Goals (SDGs), as well as the Reference Indicator System of Special ESG Reports for Listed Companies Controlled by Centrally Administrated State-owned Enterprises published by the State-owned Assets Supervision and Administration Commission of the State Council of PRC, and in combination with the actual situation of the Unit.

Data Source

The text information and quantitative data in this report are all from the official documents, statistical reports and official releases of the Unit, including direct records, statistical data, announcements and press releases of each operating site. All cited quantitative data are final statistical results.

Access to This Report

This report is provided in both Chinese and English versions. In case of any discrepancy in understanding between the two versions, the Chinese version shall prevail. If you have any questions or need further contact, please call Mr. Xu Xiang at 18975349155.

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General Manager's Speech

Distinguished Stakeholders:

In this era of challenges and opportunities, ESG has become an important standard to measure the sustainable development ability of enterprises. As the core component of CRRC Zhuzhou Institute Co., Ltd., the Wind Power Business Unit takes "Connecting the World and Benefiting Mankind" as its mission, fully assumes the responsibility for Environmental, Social and Governance while promoting the efficient utilization of wind energy and the development of green energy, and actively implements the sustainable development strategy of the Group Company.

In the past year, the Wind Power Business Unit has seized opportunities amidst challenges and achieved significant results. We have always adhered to our original aspiration and mission, worked hard in corporate governance, environmental protection, social responsibility and other aspects, fully practiced the concept of sustainable development, and continuously contributed "CRRC wisdom" and "CRRC strength" to the Company, industry and even society.

Corporate governance is the cornerstone of our steady development. From decision-making to implementation, from R&D to sales, we always strictly abide by the bottom line of laws and regulations to ensure that our corporate behaviors are legal and compliant. At the decision-making level, we have established a scientific and rigorous decision-making process, conducted full investigation, demonstration and evaluation of major issues, and listened to professional opinions from legal affairs, compliance and other departments to ensure that decisions are compliant and reasonable. At the implementation level, we have strengthened system construction and formulated a series of detailed rules and regulations covering integrity, R&D, procurement, production, quality and other aspects to provide employees with a clear code of conduct. At the same time, we have intensified supervision and inspection, paid attention to training and publicity, discovered and corrected violations in a timely manner, made compliance a conscious action of every employee, and ensured the healthy and orderly operation of the enterprise.

Business ethics is the key to winning respect from the market and society. Adhering to the principle of integrity management and the concept of fair competition, we have established honest, mutual trust and win-win cooperative relations with our partners, customers and suppliers. We strictly fulfill our contractual obligations, deliver high-quality products and services on time, sincerely listen to customers' needs, provide professional and accurate solutions, and maximize the interests of customers. We treat every supplier fairly and jointly maintain a good market order. At the same time, we actively advocate incorruptible employment and resolutely resist improper behaviors such as commercial bribery and benefit transfer, creating a clean and upright business environment and demonstrating our moral responsibility and social responsibility.

R&D innovation is an inexhaustible driving force for our sustainable development. We are well aware of the importance of technological innovation to the wind power industry, so we continue to increase R&D investment. In 2024, the number of R&D personnel increased to 235, with a year-on-year growth of nearly 15.2%. Relying on the technical strength and R&D platform of CRRC Zhuzhou Institute, we have successfully built six complete Wind Turbine Generator Systems (WTGS) technology platforms to provide solid support for the full life cycle R&D of wind power products. In terms of technological innovation, we have

made many breakthroughs, which not only enhance our market competitiveness, but also make important contributions to the technical progress and industrial upgrading of wind power industry.

Quality is the lifeline of an enterprise. We always put product quality in the first place and have established a strict quality management system. From raw material procurement to production and manufacturing, and then to product delivery, every link is strictly controlled to ensure that each WTGS meets high-standard quality requirements. At the same time, we pay attention to the continuous improvement of the quality management system and regularly review and evaluate it to continuously improve the product quality level. In 2024, the reliability of our WTGSs has reached new highs, earning the best title in the industry across multiple regions.

Customer service is an important means for us to win the market. We always adhere to the concept of "customer-centered" and provide customers with comprehensive and high-quality services. Before sales, we provide customized wind power solutions; during sales, we strictly control the production progress to ensure timely delivery of high-quality products; after sales, we establish a perfect operation and maintenance service system to provide customers with timely and efficient operation and maintenance services. In 2024, our service quality and efforts have been widely recognized by customers.

Employees are the most valuable treasure of us. We pay attention to the development and growth of employees, providing them with diversified growth paths and broad development platforms. CRRC Zhuzhou Institute has established a dual-channel promotion mechanism with parallel management channel and professional channel, so that employees can choose appropriate development paths according to their own characteristics and career planning. We have implemented the "wind" series talent training programs to help employees improve their professional skills and comprehensive quality in an all-round way. At the same time, we attach great importance to the physical and mental health of employees and the protection of their rights and interests. We provide a perfect salary and welfare system to ensure that our employees enjoy a happy and beautiful life.

In terms of public welfare undertakings, we actively participate in them and implement our social responsibilities. We participate in the construction of the Belt and Road Initiative to provide technical support and high-quality products for local new energy development; we contribute to rural revitalization, dispatch business backbones to take temporary posts, set up manufacturing bases to drive local employment and industrial chain development; we also pay attention to education, organize school aid activities and build activity rooms to bring knowledge and care to children.

Looking ahead, the Wind Power Business Unit will continue to uphold the concept of sustainable development, adhere to the bottom line of compliance management, promote the spirit of business ethics, increase investment in R&D innovation, continuously pay attention to product quality, care for the growth and well-being of employees, and actively fulfill social responsibilities. We will make unremitting efforts to achieve higher quality, more efficient and more sustainable development, and work together with all partners to create a better tomorrow for the wind power industry!

General Manager of Wind Power Business Unit
Cao Weichen
March 2025



About Us

CRRC Zhuzhou Institute Wind Power Business Unit



CRRC Zhuzhou Institute Co., Ltd. Wind Power Business Unit was established in 2006 and officially registered and obtained a business license in 2010. The company is a branch of a limited liability company (sole proprietorship of legal person invested or stock-held by a non-natural person). The Wind Power Business Unit focuses on the R&D, sales and intelligent operation and maintenance of complete WTGSs, as well as all-round services for new energy projects such as wind farms and PV power stations, including development, construction, operation and transfer. At the same time, it is committed to in-depth exploration and application of integrated clean energy system solutions. We have made every effort to promote the efficient utilization of global wind energy and solar energy, contributing to the sustainable development of human society. In the past three years, our cumulative total output value has exceeded RMB 30 billion, with products ranging from 1.5MW to 10MW onshore WTGSs and 8MW to 18MW offshore WTGSs, demonstrating our strength.

Past 3 years' total output

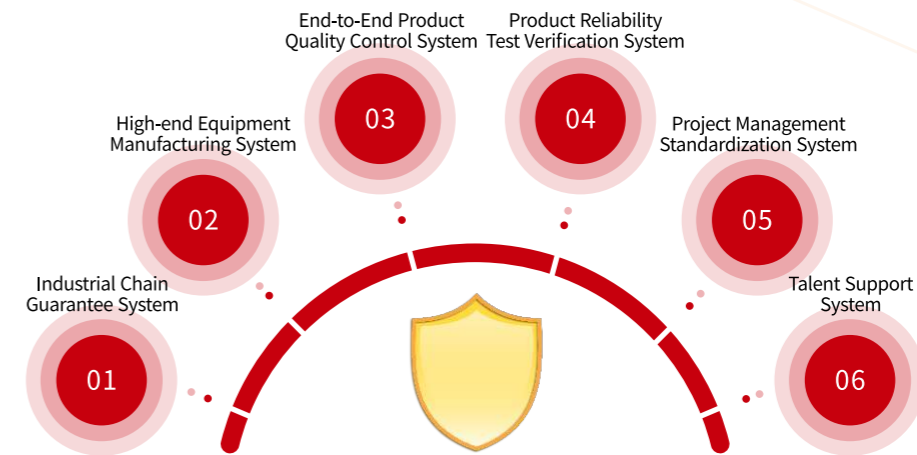
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After eighteen years of hard work, relying on the strong high-end equipment manufacturing system of CRRC Zhuzhou Institute and the unique advantages of CRRC's whole industrial chain, the Wind Power Business Unit has carefully built six technology platforms for the full life cycle of wind power products: system solution platform, intelligent WTGS technology platform, grid-friendly technology platform, digital management platform, testing and verification technology platform, and intelligent operation and maintenance service platform. At the same time, we have established six perfect guarantee systems: industrial chain guarantee system, high-end equipment manufacturing system, end-to-end product quality control system, product reliability test verification system, project management standardization system and talent support system, providing optimal Levelized Cost of Electricity (LCOE) solutions for various application scenarios such as large bases, mountains, plateaus, distributed and offshore applications, demonstrating CRRC's wisdom and strength.

Six major technology platforms

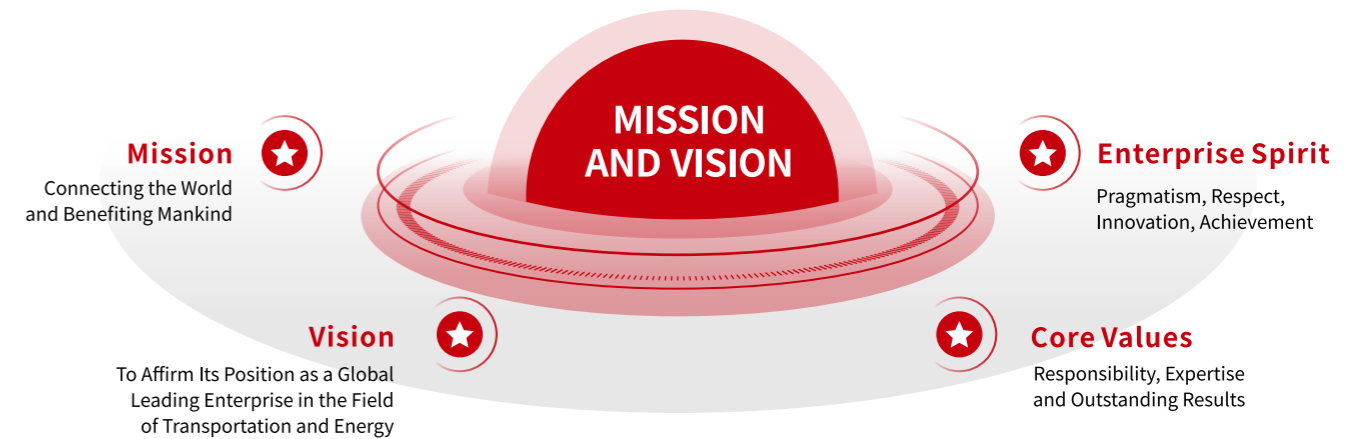


Six major guarantee systems



Based on the profound accumulation of CRRC Zhuzhou Institute in the three major technical fields of "devices", "algorithms" and "materials", we have successfully integrated key core technologies such as system integration, conversion and control in the rail transit field across borders, and applied them to wind power, PV and comprehensive energy businesses. In this process, we have mastered a number of cutting-edge core technologies, such as high-precision wind power prediction technology, energy guide platform technology, ultra-high tower design technology, "one WTGS, one storage" integration technology, cloud-edge collaborative PHM (Prognostics and Health Management) technology, WTGS digital twin technology, Unmanned Intelligent Operation Technology, blade deicing technology, wind/PV/storage coupling technology and integrated energy management system, continuously contributing CRRC's wisdom and strength to the new era of "zero carbon".

CRRC stands for excellent quality and trust. The Wind Power Business Unit has always adhered to the core value of "Responsibility, Expertise and Outstanding Results", upheld the enterprise spirit of "Pragmatism, Respect, Innovation, Achievement", and shouldered the noble mission of "Connecting the World through Better Mobility". We are committed to becoming a leader in clean energy system solutions and contributing solid strength and wisdom to China's ambitious goal of "reaching peak carbon dioxide emissions by 2030 and carbon neutrality by 2060".

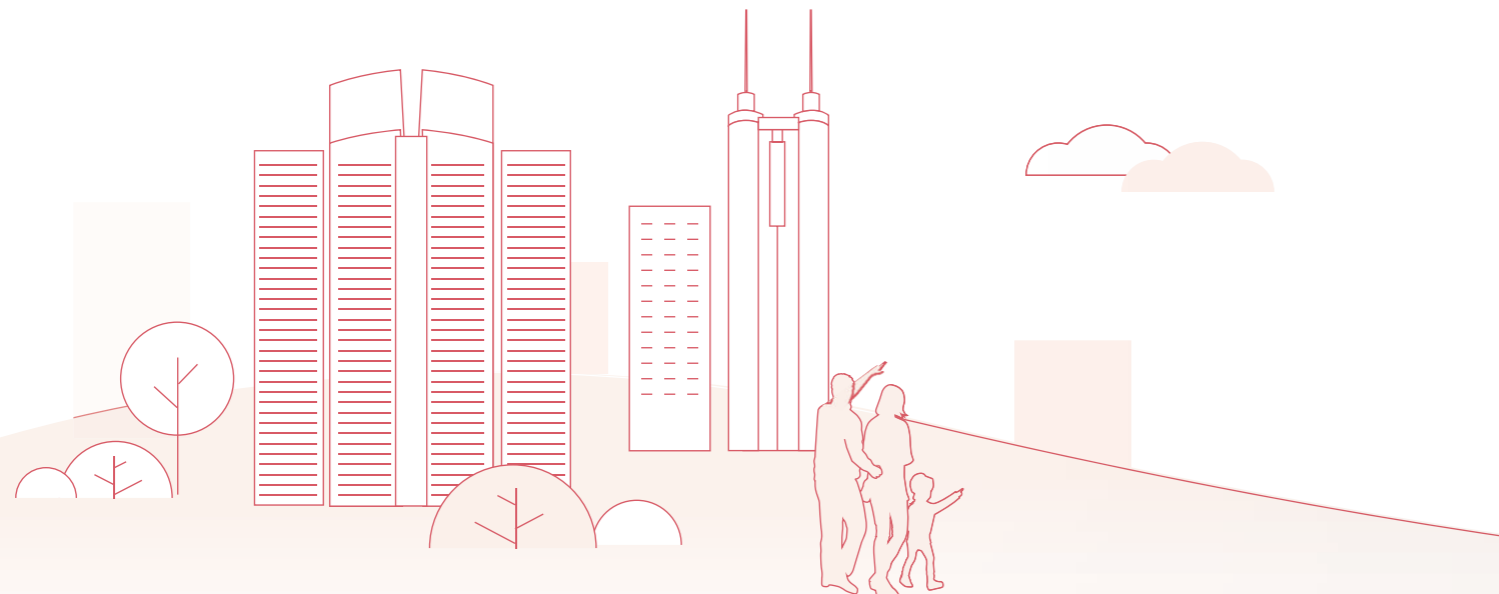
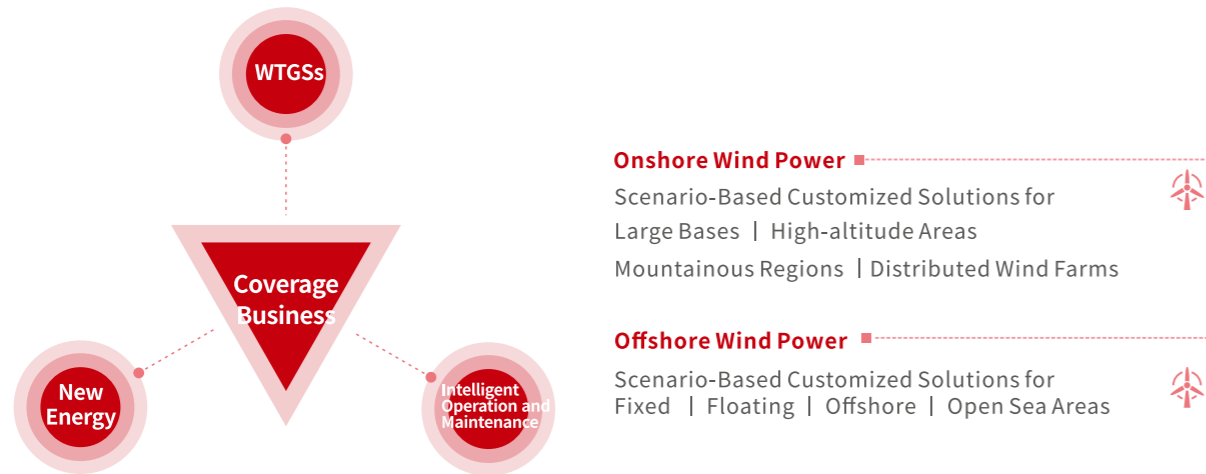


Coverage Business

CRRC Zhuzhou Institute Wind Power Business Unit has comprehensive and diversified businesses, which not only cover the whole process from development to sales of complete WTGSs, but also go deep into the field of intelligent operation and maintenance to provide guarantee for the long-term and efficient operation of wind farms. In addition, the Unit also actively participates in the development, construction, operation and transfer of new energy projects, and is committed to the comprehensive utilization and optimal allocation of clean energy. It has also achieved significant results in the research and application of integrated clean energy system solutions.

In the product line, we provide 1.5MW to 10MW onshore WTGSs and 8MW to 18MW offshore WTGSs, meeting the demand of wind power generation at different scales and scenarios. The business scope is wide. From the initial development of resources and precision manufacturing of complete WTGSs to digital and intelligent energy services, the Wind Power Business Unit can provide all-round support, truly realizing the full life cycle coverage of wind power.

In terms of solutions, the Unit has carefully built a diversified solution system according to different actual application scenarios. In terms of onshore wind power, targeted solutions have been designed according to the characteristics of large bases, high altitudes, mountainous regions and distributed wind farms to ensure stable and efficient operation of wind power projects in various complex environments. In terms of offshore wind power, customized solutions have been provided according to the needs of different scenarios such as fixed, floating, offshore and open sea areas, demonstrating the Unit's strong ability in large-scale, multi-scenario, multi-application and personalized services.



Honorary Awards

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March 2024
CRRC Corporation Limited

CRRC's Science and Technology Award —Special Prize - Research on Key Technologies of Onshore High-power Affordable WTGSs Based on Collaborative Innovation and Development of Series Products
- 

March 2024
CRRC Corporation Limited

CRRC's Science and Technology Award - Second Prize - Research and Construction of Technical Standard System for CRRC Wind Power Products
- 

May 2024
Hunan Quality Association

First Prize of the 5th Quality Innovation and Quality Improvement Achievement Award in Hunan Province - Innovation & Practice of End-to-end Quality Information System for Wind Power Equipment
- 

May 2024
Hunan Quality Association

First Prize of the 5th Quality Innovation and Quality Improvement Achievement Award in Hunan Province - Quality Innovation for Overspeed Suppression of WTGS Generator
- 

July 2024
Hunan Quality Association

First Prize of the Quality Assurance Team Achievement Award in Hunan Province
- 

July 2024
Hunan Quality Association

First Prize of the 45th QC Group Achievement Award in Hunan Province
- 

September 2024
Hunan Machinery Industry Quality Management Association, etc.

Excellent Quality Management Team in Hunan Province in 2024
- 

September 2024
Hunan Machinery Industry Quality Management Association

"CRRC Zhuzhou Wind Power" Cup: The Third Prize for Outstanding QC Achievements - Improvement of Qualification Rate of Surface Treatment Process - Horizontal Spraying Line
- 

September 2024
Hunan Machinery Industry Quality Management Association

Excellent Quality Trustworthy Team of "CRRC Zhuzhou Wind Power" Cup - Customer Service Center of CRRC Zhuzhou Institute Wind Power Business Unit
- 

September 2024
China Electric Power Construction Association

China Electric Power Quality Project Award
- 

October 2024
China Operation and Maintenance Branch

Special Prize for Achievements of Wind Power Operation and Maintenance Quality Management Team Activity in 2024 - Reducing the Adjustment Deviation of Yaw Cam Angle
- 

October 2024
China Operation and Maintenance Branch

Special Prize for Achievements of Wind Power Operation and Maintenance Quality Management Team Activity in 2024 - Reducing the Defect Rate of WTGS Power Cable Construction



Sustainability Management

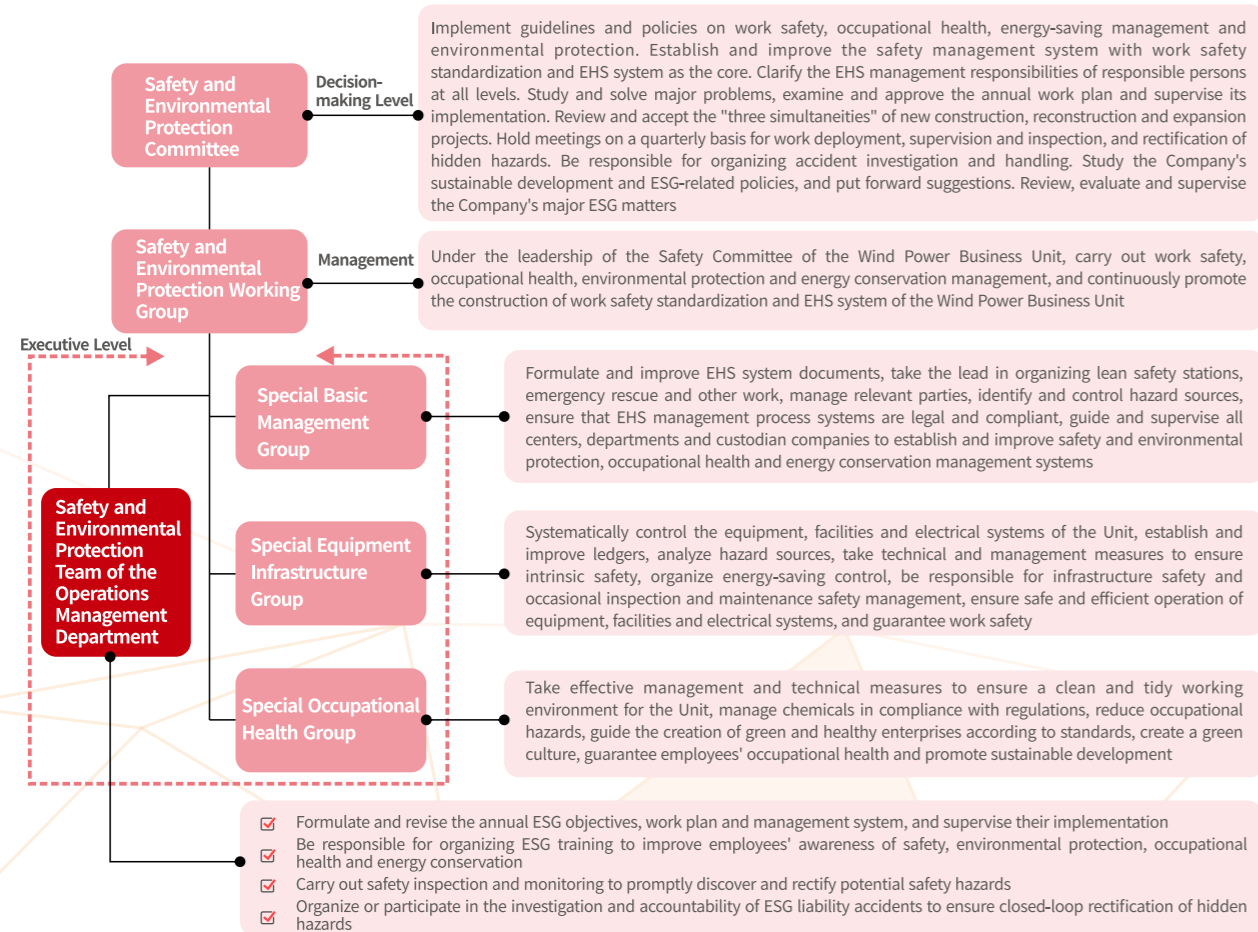
ESG Governance

The Wind Power Business Unit has established a complete and efficient ESG management framework with linkage from top to bottom. As the highest responsible unit and decision-making core of ESG governance, the Safety and Environmental Protection Committee (hereinafter referred to as "Safety Committee") is composed of senior leaders of the Unit and heads of key departments. It fully covers all core positions within the Unit and ensures the comprehensiveness and authority of decision-making. As the director of the Safety Committee, the General Manager of the Wind Power Business Unit is the first responsible person for ESG management and bears the ultimate responsibility for the effective operation and continuous improvement of ESG governance.

The Safety Committee has a safety and environmental protection working group, which specifically undertakes the important task of ESG management. In order to promote the work in a refined manner, the safety and environmental protection working group is further subdivided into three special groups: special basic management group, special equipment infrastructure group and special occupational health group. They are respectively responsible for ESG management and implementation in their respective fields to ensure the professionalism and pertinence of management.

In addition, as a permanent office of the Safety Committee, the Safety and Environmental Protection Team of the Operations Management Department is responsible for the daily management and implementation of ESG, handling various daily affairs, and ensuring the smooth operation of the ESG management system.

We regularly organize sustainability training seminars and actively conduct in-depth exchanges with professional institutions, aiming to further deepen the comprehensive understanding of ESG core members on the concept of sustainable development and enhance their ability to effectively translate this concept into practice. Through these training activities and exchanges, we have continuously promoted the efficient operation of the ESG governance framework and continuously improved the professional quality and practice level of the entire top governing body in sustainable development.







Stakeholder Communication

CRRC Zhuzhou Institute Wind Power Business Unit has long been committed to building a stable communication bridge and cooperation network with multiple stakeholders, covering multi-dimensional groups such as employees, customers, suppliers, government agencies, research institutions, industry associations, media partners and local communities. Through a series of extensive and in-depth communication practices, we actively listen to and deeply understand the expectations and core concerns of all parties. In order to achieve this goal, the Company flexibly uses diversified communication channels and strategies. It not only retains the traditional methods such as regular meetings, in-depth interviews, efficient teleconferences and professional research, but also keeps up with the pace of the times and continuously innovates communication means. We make full use of the powerful capabilities of digital platforms and social media to greatly enhance instant interaction and in-depth communication with various stakeholders. These measures ensure that our strategic plans and practical actions in promoting sustainable development, fulfilling environmental protection commitments and fulfilling social responsibilities can quickly and accurately respond to the concerns and expectations of stakeholders, and work together towards a greener, harmonious and win-win future.

Stakeholder Expectations and Communication

Stakeholders	Expectations and requirements	Communication methods
Shareholder	<ul style="list-style-type: none"> Shareholder returns Information disclosure Risk control Business Performance 	<ul style="list-style-type: none"> Annual summary and report Regular reporting ESG survey questionnaires, etc.
Customers	<ul style="list-style-type: none"> High-quality products Reliable after-sales services Technical support Reasonable price, etc. 	<ul style="list-style-type: none"> Customer service hotline Regular return visits Customer opinion solicitation Customer satisfaction surveys Social media interaction ESG survey questionnaires, etc.
Employees	<ul style="list-style-type: none"> Career development Working environment Welfare treatment Working stability, etc. 	<ul style="list-style-type: none"> Regular meetings Internal training Cultural and sports activities Group symposiums Employee satisfaction surveys Internal communication platforms ESG survey questionnaires, etc.
Supplier	<ul style="list-style-type: none"> Stable cooperative relationship Reasonable purchase price Timely payment Technical support, etc. 	<ul style="list-style-type: none"> Supplier conferences Tender meetings Regular communication meetings Emails Digital procurement platforms ESG survey questionnaires, etc.
Government agencies	<ul style="list-style-type: none"> Compliance with laws and regulations Compliance operation Paying taxes according to law Industry drive National strategic response, etc. 	<ul style="list-style-type: none"> Information disclosure Government project application Visit reception Regular reporting of work progress ESG survey questionnaires, etc.

Stakeholders	Expectations and requirements	Communication methods
 Research institutions	<ul style="list-style-type: none"> • Technical cooperation • R&D support • Data sharing • Talent cultivation, etc. 	<ul style="list-style-type: none"> • Cooperative R&D agreements • Academic exchange conferences • Joint laboratory construction • Talent exchange programs • ESG survey questionnaires, etc.
 Industry associations	<ul style="list-style-type: none"> • Industry standards • Market information • Technical exchange • Policy suggestions, etc. 	<ul style="list-style-type: none"> • Industry conferences • Standard development participation • Market research cooperation • Policy seminars • ESG survey questionnaires, etc.
 Media	<ul style="list-style-type: none"> • Enterprise news • Industry news • Financial performance • Social responsibility report • Brand promotion, etc. 	<ul style="list-style-type: none"> • Information disclosure • Media interviews • Public relations activities • Release of ESG survey questionnaires on enterprise official websites and social media
 Local communities	<ul style="list-style-type: none"> • Employment promotion • Environmental protection • Community service and charity 	<ul style="list-style-type: none"> • Community public welfare activities • Job fairs • Community symposiums • ESG survey questionnaires, etc.

We have built a highly comprehensive and diversified communication platform, which deeply integrates multi-dimensional information sources: including the strategic vision of the Company's top management, the practical expectations of employees, the broad needs of the entire value chain, professional advice from internal and external experts, cutting-edge information from global media, in-depth benchmarking analysis within the same industry, authoritative guiding principles in the field of social responsibility, and direct feedback from governments and communities. Through this comprehensive and in-depth information integration mechanism, we can accurately identify the core issues closely related to risks and opportunities, and realize efficient management of these issues. This not only improves the quality of our decision-making, but also enables us to respond quickly and precisely to the diverse expectations and deep concerns of various stakeholders.

Identification of Substantive Issues

In 2024, we have conducted in-depth analysis and defined substantive ESG issues. The assessment process covers four key links: identification, research, confirmation ranking and response. It aims to accurately focus on the core issues that are crucial for achieving the Unit's ESG goals, and build a scientific matrix of substantive ESG issues accordingly. Based on the analysis results, the Wind Power Business Unit will implement targeted policies and make every effort to promote the overall improvement of ESG performance.

◆ Substantive Issue Evaluation Process

Precise identification of topics

Relying on in-depth research on the external policy environment, benchmarking of advanced practices in the same industry and keen insight into future trends of the industry, we have carefully screened out key topics that have a significant impact on the operation and development of Wind Power Business Unit or can significantly affect the evaluation and decision-making of stakeholders to ensure accurate and forward-looking topic identification in close combination with the long-term development strategy, business attributes and operational blueprint of Wind Power Business Unit.

In-depth interview and comprehensive survey

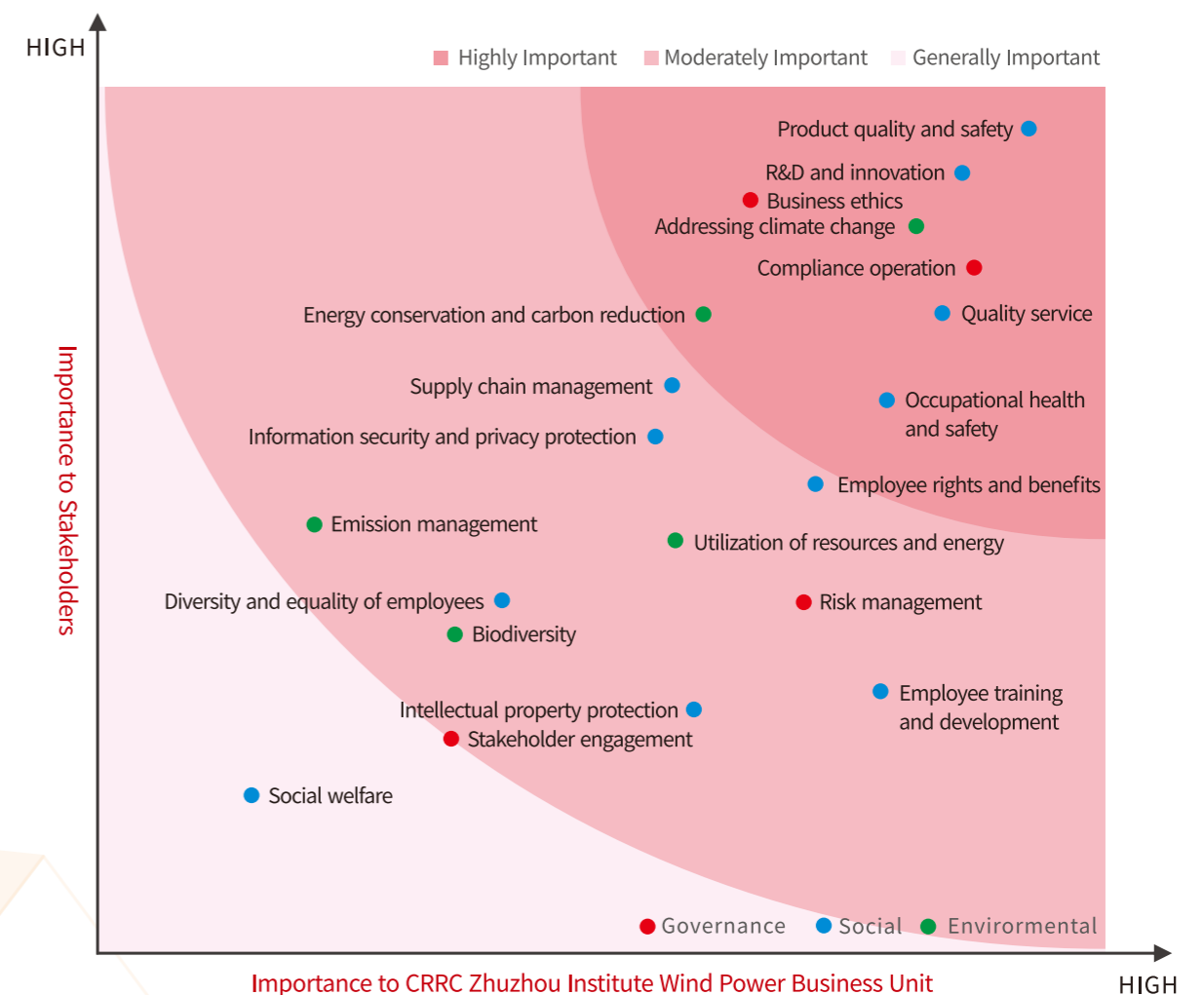
To ensure the comprehensiveness and accuracy of data collection, we specially invited a third-party expert consultant team to provide professional guidance, carefully designed and distributed special questionnaires on ESG substantive topics, and widely solicited valuable opinions from all stakeholders. At the same time, the Company and the senior management team of the Wind Power Business Unit conducted an in-depth analysis based on the current situation of the industry, which further enriched the data foundation and enhanced the depth and breadth of analysis.

Identification and ranking of scientific topics

Based on the abundant data collected and feedback, we have used scientific methods to carry out detailed data processing and analysis, comprehensively considered the expectations and concerns of all stakeholders, and finally identified the core topic. According to the direct impact of these topics on the achievement of ESG goals of the Wind Power Business Unit, a scientific and reasonable ranking is carried out, which provides clear priority guidance for subsequent strategy formulation.

Positive response and transparent communication on topics

According to the evaluation results of the importance of topics, we have built a matrix of ESG substantive topics and disclosed relevant topics in the report. This initiative has not only significantly improved the transparency of communication between the Wind Power Business Unit and various stakeholders, but also fully demonstrated our unremitting pursuit and firm commitment in the ESG field.





Response to UN SDGs

We actively advocate and fully promote the 17 Sustainable Development Goals (SDGs) proposed by the United Nations, strive to achieve deep integration and win-win development of business value and social value and contribute to a sustainable future.

Responsible Governance, Harnessing the Wind for Steady Progress

- Business ethics
- Risk management
- Compliance operation
- Information security and privacy protection



Respecting Nature, Embracing Wind Power for Green Coexistence

- Energy conservation and carbon reduction
- Addressing climate change
- Emission management
- Utilization of resources and energy
- Biodiversity



Driven by Innovation, Embark on a New Journey by the Wind

- R&D and innovation
- Intellectual property protection
- Product quality and safety
- Quality service
- Supply chain management



People-oriented, Riding the Wind to Build Dreams Together

- Diversity and equality of employees
- Occupational health and safety
- Employee training and development
- Employee rights and benefits



- Social Welfare



Key Performance



◆ Economy

Indicator	Unit	2023	2024
Total assets	RMB 100 million	102.65	156.20
Sales revenue	RMB 100 million	71.01	68.53
Operation cost	RMB 100 million	70.66	70.47
Total tax payments	RMB 100 million	2.23	2.42
Total employee compensation	RMB 100 million	1.3	1.4

◆ Environmental

Indicators	Unit	2023	2024
Amount of environmental protection investment	RMB 10,000	11.05	26.16
Number of environmental penalties	Time(s)	0	0
Number of environmental litigation	Time(s)	0	0
GHG emissions (scope 1 + scope 2)	tCO ₂ eq	680.22	1128.99
Discharge amount of wastewater	t	65,982	95,756
Discharge of general solid waste	t	15.5	12.0
Comprehensive utilization rate of general solid waste	%	100	100
Total power consumption	10,000 kWh	176.27	234.22
Total water consumption	t	82,478	119,695

◆ Social

Indicators	Unit	2023	2024
R&D investment	RMB 100 million	1.9	1.9
Number of R&D staff	Person(s)	204	235
Patents granted data	Pcs.	18	8
Patent application data	Pcs.	33	31
Number of quality liability accidents	Time(s)	0	0
Customer satisfaction	%	95.48	95.68
Proportion of middle-level and above female managers in management staff	%	14.00	13.86
Total number of employees	Person(s)	1,419	1,889
Employee churn	%	16.70	19.11
Employee satisfaction	%	100	100
Salary ratio of men and women in the same position	/	1:1	1:1
Signing rate of labor contracts	%	100	100
Coverage rate of social insurance	%	100	100
Coverage of employee physical examination	%	100	100
Number of work-related deaths	Person(s)	0	0
Occurrences of occupational diseases	Time(s)	0	0



Special Topic

Eighteen Years of Flourishing, Adulthood While Riding the Wind

Over the past eighteen years, we are still in our prime. Adulthood while riding the wind, we will go forward with dreams. On August 18, CRRC Zhuzhou Institute Wind Power Business Unit celebrated its brilliant 18th birthday. As an important pillar of the strategy of "two tracks and three clusters", this group of "wind chasers" has actively responded to the national new energy policy since its birth, drawing magnificent picture scrolls in the wind power field with green energy as the brush.



◆ Returning with Honor, Worthy of Trust

Looking back, every step is engraved with the footprints of growth and glory. We have not only won many awards in the field of wind power in China but also shone brilliantly on the international stage, demonstrating our outstanding strength and extraordinary style.

In July 2008, CRRC Zhuzhou Institute obtained the first batch order of wind power and successfully won the bid for the Hunan Chenzhou Yangtianhu Wind Power Project, the first large-scale wind power project in Hunan Province. Nowadays, with the shooting of the variety show Chinese Restaurant, Yangtianhu Wind Farm has become an online popular scenic spot.

Yunnan Wuzipo Wind Farm adopts the WT1500 plateau-type WTGS developed by CRRC Zhuzhou Institute. Wuzipo Wind Farm won the first and second prizes in Western Yunnan of Southern China in the national benchmarking and competition of wind farm production and operation statistical indicators, with an availability rate of 99.44%.

Ningxia Xihuashan Wind Farm has installed 106 WT2000D110H80 WTGS developed by CRRC Zhuzhou Institute. In October 2017, the project won the award of "Best Wind Power Project in Asia". In December of the same year, it was further awarded the honor of "World's Best Wind Power Project", marking its remarkable achievement in the global wind power field.

Gansu Maojing Wind Farm Project has built 100 sets of 2MW WTGS, with a total installed capacity of 200MW. In 2017, 2018 and 2019, Maojing Wind Farm won the title of "AAA Grade of National Benchmarking of Wind Farm Production and Operation Statistical Indicators".

As the first wind farm of CRRC with a total capacity of 500MW, Jilin Qian'an Wind Farm adopts 125 WT4000D168H100 WTGS provided by CRRC Zhuzhou Institute. The project is an important part of "Jilin Electricity Entering Shandong" and also a key project in the energy planning of Shandong Province and Jilin Province during the "14th Five-Year Plan", which has been listed in Jilin Province's "Major Project Library".

The total installed capacity of Yunnan Huomuliang Wind Farm Project is 49.5MW, which was the wind power project with the highest installation altitude, the largest unit power and the largest rotor diameter in Southwest China at that time. It is also the first onshore "box-type substation overhead" wind power project in China. The sales volume of the 3.xMW model has exceeded ten billion.

In July 2024, the first unit of the world's highest altitude wind power project - Xizang Baxiu 100MW Affordable Grid-connected Wind Power Project was successfully hoisted and installed. The 5MWD195 doubly-fed WTGS designed by CRRC Zhuzhou Institute for environmental adaptability in high altitude and alpine regions was adopted.

◆ Wind Surges in Zhangbei, Innovation Never Stops

We have never stopped on the road of technological innovation. Every technological breakthrough embodies our wisdom and sweat, demonstrating the Company's innovative strength and industry leadership in the field of wind power.

In June 2021, CRRC Zhuzhou Institute launched its flagship onshore product 5.xMWD175 WTGS, which was successfully hoisted in Zhangbei, Hebei. The rotor diameter of the WTGS is 175 m, setting a new record for the largest rotor diameter of onshore WTGS installed in the world at that time.

In February 2022, "The wind in Zhangbei lights up the lights of Beijing". The 108 WTGS independently developed and manufactured by CRRC Zhuzhou Institute have been operating stably and continuously with high quality in wind farms such as Zhangbei Wind Farm and Shangyi Wind Farm in Hebei Province. The continuous transmission of green electricity not only lights up Olympic venues but also illuminates thousands of households in Beijing.

On December 29, 2022, CRRC Zhuzhou Institute launched a flagship model — 8MW+ WTGS for the bases in the "desert, gobi and wilderness", which was

successfully hoisted in Zhangbei County, Zhangjiakou City, Hebei Province, empowering high-quality development with scientific and technological innovation, and laying a solid foundation for "Pillar of China and Engine of the Industry".

In January 2024, the 10MWD230 onshore WTGS independently developed by CRRC Zhuzhou Institute was hoisted at Zhangbei Test Wind Farm of China Electric Power Research Institute, marking a new step in the research and development of onshore WTGS in China.

◆ Pursuing Dreams in the Ocean, "Blossoming" Overseas

While actively expanding the domestic market, we have also bravely marched into the international market and won the trust and praise of overseas customers with excellent products and services.

The Vietnam Shuang'an Wind Farm Project was successfully won and launched in 2021, marking the successful "going global" of CRRC's first overseas complete WTG project. The 3.3MWD160 WTGS with a height of 140m produced by CRRC Zhuzhou Institute is adopted. It is the complete WTG with the largest unit capacity and impeller diameter exported by Hunan Province so far.

The first prototype of CRRC's first offshore WTG, "Haipingmian No.1", rolled off the production line on November 13, 2022; the prototype was erected on November 24; On December 7, the first offshore prototype was connected to the grid for power generation; on April 27, 2023, the prototype generated more than 10 million kWh.

On March 22, 2024, CRRC Zhuzhou Institute unveiled the world's largest 20MW floating WTGS "Qihang". This floating WTGS breaks through the geographical restrictions of traditional WTGS and expands the scope of wind power generation to deep sea areas.

In June 2024, the first offshore wind power market project of CRRC Zhuzhou Institute — South U1 Site Phase II Offshore Wind Power Project in Shandong Haiwei Peninsula was successfully delivered, marking the batch application of offshore WTGS of CRRC Zhuzhou Institute and reinjecting strong impetus for accelerating the double-sea strategic layout of the wind power industry.

Through trials and hardships over 18 years, we have witnessed the vigorous development of the wind power industry; through forging ahead over 18 years, we have created countless shining moments together. Nowadays, standing at a new historical starting point, the "Wind Power Men" are continuing to explore the infinite possibilities of wind energy with full enthusiasm.

We believe that wind in the future will be freer and more efficient. The wind initiates a new journey, building dreams for the future. We will also contribute more "CRRC wisdom" and "CRRC strength" to the global clean energy cause.



Responsible Governance

Harnessing the Wind for Steady Progress

We are well aware that responsible corporate governance is the foundation of long-term development. We always put compliance management in the first place to ensure that corporate behaviors are legal and compliant; establish and improve risk prevention and control mechanisms to effectively deal with various potential risks; uphold the principle of integrity and self-discipline to create a clean and upright enterprise atmosphere; strengthen information security protection to protect the safety of corporate data assets and stakeholders; advocate moral ethics and shape a positive corporate culture. On the road of responsible governance, we will move forward steadily.

Core issues

Business ethics Risk management Compliance operation
Information security and privacy protection

Contributions to SDGs





Consolidate the Organization and Lay A Foundation

As the core business unit of CRRC Zhuzhou Institute, the Wind Power Business Unit has its General Manager as the top manager to lead an efficient and cooperative management team. There are 7 deputy general managers assisting the General Manager, and they are in charge of different departments (centers), forming a management structure with clear responsibilities and smooth operation.

In the selection of senior managers, the Company adheres to the principles of openness, impartiality and fairness and conducts merit-based selection through the competitive mechanism for professional managers. This mechanism not only ensures the accurate connection between managers' professional abilities and job requirements, but also stimulates the enthusiasm and creativity of internal talents. Under special circumstances, the Company will also adopt a direct appointment system to quickly respond to organizational needs. Candidates need to go through rigorous screening, review and defense, and the most suitable candidates will be finally selected according to the results of competition, so as to ensure the high quality and professionalism of the management team.

As the first responsible person of the Wind Power Business Unit, the General Manager shoulders multiple responsibilities such as formulating strategic direction, promoting business development and ensuring operational safety.

The senior management team plays a vital oversight role in managing impact. They comprehensively control the work progress of all departments (centers) through various ways such as holding regular meetings, implementing performance evaluation and conducting on-site inspections to find and correct deviations in time to ensure that the entire Wind Power Business Unit moves forward steadily according to the established plan.

In terms of conflicts of interest management, we have established a strict and perfect prevention and management mechanism. According to the unified requirements of the Company, the senior management and all professional managers shall regularly report their personal interests every year, including sensitive information such as investment, part-time jobs and kinship. At the same time, we implement a strict decision-making avoidance system. In the process of making decisions involving potential conflicts of interest, relevant management personnel need to proactively recuse themselves to ensure the impartiality and independence of decision-making and safeguard the overall interests of the organization.

In terms of communication on important concerns, we have established the mechanism for "Three Major and One Large" matters, grievance mechanism and other various communication channels to ensure that stakeholders such as employees, customers and suppliers can timely feed back their concerns about potential and actual negative impacts of the organization.

In addition, the Company is committed to pay equity. We strictly follow the Company's Management Measures for Leadership Compensation to ensure that executives' compensation is aligned with organizational performance and long-term sustainable development goals. In the future, we will continue to evaluate the feasibility of information disclosure and gradually improve the transparency of compensation-related information and enhance the credibility and transparency of the organization on the premise of complying with laws, regulations and internal policies.



Take Compliance as the Guideline and Escort Development

Compliance Management

According to the unified compliance management system of the Group Company and CRRC Zhuzhou Institute, the Wind Power Business Unit has formulated the Compliance Management Measures for Wind Power Business Unit, which clarifies the compliance management responsibilities, principles and system construction of the Wind Power Business Unit and applies to all business activities of the Wind Power Business Unit.

In order to ensure the effective implementation of compliance management, the Wind Power Business Unit closely refers to the Rules for Compliance Review Management of CRRC Zhuzhou Institute and requires all business and functional departments to strictly fulfill their compliance review responsibilities in daily operation and management. For key areas such as rules and regulations, economic contracts and major decisions, the Wind Power Business Unit has established a strict compliance review process to ensure the legality and compliance of the decision-making process.

CRRC Zhuzhou Institute Co., Ltd. obtained the ISO 37301:2021 Compliance Management System Certificate on November 15, 2024, and the scope of this certification includes the Wind Power Business Unit. Taking this opportunity, the Wind Power Business Unit further refined and optimized its compliance management system to ensure close alignment with international standards and continuous improvement on the professional level and effectiveness of compliance management.



CASE

Compliance Training in 2024: Deepen Overseas Business Compliance and Leadership Integrity Education

In 2024, we have carried out "a series of training on compliance risk prevention for overseas business" for all employees of the International Business Department, Investment Planning Department, Financial Assets Department and Operation Management Department of the Wind Power Business Unit, aiming at deepening relevant personnel's understanding of compliance risks in overseas business and improving their risk prevention skills.

At the same time, we also specially organized the leaders of the Wind Power Business Unit to study the Integrity Compliance Manual for CRRC Employees issued by the Group Company, so as to further strengthen the compliance awareness of the leadership, clarify their responsibilities in compliance management, and lay a solid foundation for building a more solid compliance culture.



Risk Management

We are committed to establishing and continuously optimizing a comprehensive risk management system. By strengthening the three lines of defense of all functions, we have formed a large-cycle risk management mode with prevention as the focus, control as the main line and supervision activities throughout the whole process. This mode aims to avoid major risks, promote the realization of strategic objectives and ensure the continuous sound operation of the enterprise. In terms of specific implementation, as the first line of defense for risk management, all business departments of the Company are responsible for preliminarily identifying and preventing risks. The full-time risk management department and relevant functional departments constitute the second line of defense, responsible for further refining and implementing risk management measures. As the third line of defense, the internal audit & supervision department ensures the effectiveness and compliance of risk management.

The Wind Power Business Unit strictly follows the risk management systems formulated by the Company, such as the Measures for Comprehensive Risk Management, the Measures for the Administration of Major Project Risk Reviews, and the Measures for Project Risk Management of New Energy Market. These systems are applicable to the Company and its business entities, providing clear guidance and basis for risk management.

The Company regularly organizes risk assessment activities in various functional areas every year to comprehensively identify the risk points in all areas. As an important part of annual risk management, the assessment results provide strong data support for risk control. For major projects, we will also organize special risk assessment activities and issue special risk assessment reports to provide scientific basis for project decision-making. In terms of risk management in key areas, we have set up risk monitoring indicators for key risk points such as accounts receivable and inventory, and conducted regular follow-up monitoring and early warning activities.

In addition, we organize the formulation of specific risk control measures for high-risk business events and major project risks, and clarify the responsible subjects and persons. At the same time, we regularly track and monitor the implementation of measures and the effect of risk control, continuously optimize risk control measures according to the actual situation, and strengthen supervision and assessment until the risks are completely eliminated.

Information Security

CRRC Zhuzhou Institute Co., Ltd. places great emphasis on information security and protection. It consistently upholds the principles of rigor and compliance, and strictly adheres to the relevant laws and regulations concerning information security and personal privacy protection in the countries or regions involved in its business. In strict accordance with the requirements of laws such as the Cybersecurity Law of the People's Republic of China, Data Security Law of the People's Republic of China and Personal Information Protection Law of the People's Republic of China, the Company has set up a special information security and network security management organization and clearly implemented the responsibility system for network information security.

Institutional System

The Company has formulated and issued a series of system documents, such as Measures for the Administration of Information Security Work, Measures for the Administration of Information Notification on Network and Information Security, Measures for the Administration of Information System Life Cycle Security, Measures for the Administration of Internet-accessible Information System Deployment, and Measures for the Administration of Computer Network Systems, providing solid institutional support for information security management.

Security Protection

The Wind Power Business Unit has deployed multi-level protection tools such as firewall, intrusion prevention, WAF, host security, honeypot and Zero Trust to build a solid security barrier. Encryption technologies and authentication mechanisms are employed for the transmission and storage of sensitive information, and important business system data is backed up and encrypted to ensure data security. In terms of terminal access, continuous authentication and security checks are carried out for remote users, while local users undergo unified identity authentication for network access, ensuring strict control. Comprehensive security monitoring of all network traffic is conducted to ensure the normalization of network security operations and the continuity of capability assessments. At the same time, physical security is strengthened, and key facilities such as data centers are provided with access control, video monitoring and other measures to ensure environmental stability. We have also formulated the Emergency Plan for Network and Information Security Incidents of Wind Power Business Unit, establishing a monitoring and early warning mechanism that covers various types of security incidents. Prevention and drills are integrated into daily management to enhance the overall network security awareness and response capabilities of all employees.

In 2024, the Wind Power Business Unit has achieved remarkable results in vulnerability management, with a repair rate of over 90% for high-risk vulnerabilities, greatly reducing the risk of system attacks.

Privacy Protection

We adhere to the principles of legality, transparency, and necessity in data collection, obtaining only the minimum information required to complete tasks and clearly informing users of the purpose. When processing data, we follow the principle of minimization and use anonymization or pseudonymization techniques to reduce risks. Personal information is never shared without user consent or legal requirements. The data retention period is reasonably set, and expired data are safely deleted. We respect the rights of users and provide convenient ways to exercise their right to know, choose, access, correct and delete. At the same time, we conduct regular security audits and penetration tests, provide insurance compensation, and strictly adhere to the privacy policy.

In 2024, the Wind Power Business Unit has not received any complaint of infringement on customer privacy or loss of customer data, and there have been no violations of laws and regulations related to customer privacy.

Description	Unit	2023	2024
Number of information security audits	Time(s)	4	4
Number of substantiated complaints on infringement of customer privacy and loss of customer data	Pcs.	0	0
Total number of violations in customer privacy	Pcs.	0	0

Multidimensional Training

We continue to educate employees to improve their awareness of information security, promote strong passwords and two-factor authentication, and regularly issue security announcements and technical documents to fully protect users' online assets and personal privacy.

In 2024, we organized data security awareness training and Zero Trust access training, and held a security awareness publicity week event. By putting up posters and distributing brochures, we have created a strong atmosphere of data security.

CASE

Network Security Training Organized by the Wind Power Business Unit

In November 2024, the Wind Power Business Unit organized a comprehensive cybersecurity awareness training in response to increasingly complex cyber threats. The training experts provided in-depth explanations of the attack methods faced by industrial control systems, emphasizing the importance of data encryption, access control, and security auditing. At the same time, practical methods for preventing social engineering attacks and protecting personal information were shared, helping employees to deeply understand that cybersecurity is everyone's responsibility.



CASE Wind Power Business Unit Transforming to Zero-trust Network and Building A Defense Line for Telecommuting Security

In order to strengthen the Company's network security, in March 2024, the Operation Management Department of the Wind Power Business Unit took the lead in launching a network architecture optimization project, aiming at improving the security of remote access to data centers by mobile terminals and Internet PCs, reducing the exposure surface of application systems, and strengthening user access control. The project team completed the migration of more than 100 users in three months, realizing a smooth transition from traditional SSL VPN to the zero trust architecture. This transformation not only enhanced the security of telecommuting and strengthened the protection of sensitive data but also reduced the risk of data breaches, laying a solid security foundation for the digital business development of the Wind Power Business Unit.

CASE Cooperating with Partners to Organize Data Security Training and Create A Good Security Culture Atmosphere

In 2024, we held a significant data security training event in conjunction with external partners. Security experts from partners were specially invited to give wonderful lectures on best practices and real cases of data security for all employees. After the training, we set up a feedback channel to collect employees' opinions to continuously optimize our internal safety policy. This activity not only enhanced employees' understanding of data security, but also stimulated the enthusiasm of all employees to actively participate in data security construction and created a good information security culture atmosphere. Subsequently, the Wind Power Business Unit will consider introducing external excellent practices to continuously improve the level of data security.



Establish the Enterprise with Ethics and Put Responsibility First

The Wind Power Business Unit continues to promote the construction of integrity, and integrates integrity awareness and responsibility into daily management and all aspects of external cooperation. In 2024, we strengthened the integrity and anti-corruption system and educational training to ensure that the culture of integrity is consolidated within the Wind Power Business Unit, and strove to promote and implement the culture of integrity in the supply chain.

Integrity System Construction

◆ Systems and Measures

The Wind Power Business Unit is committed to creating a clean and honest working atmosphere, strictly abiding by the relevant national laws and regulations on anti-corruption. At the same time, it strictly follows a series of rules and regulations such as the Implementation Management Measures for Integrity Risk Prevention and Control and the Management Measures for Professional Integrity issued by CRRC Zhuzhou Institute, making every effort to promote the construction of the Company's integrity system and cultivate an integrity culture.

We closely integrate the core essence and management requirements of the "Three Majors and One Large" decision-making system into the internal management system, and a comprehensive review has been conducted on major decision-making matters, significant personnel appointments and dismissals, major project arrangements, and substantial financial operations, resulting in a clear list of identified matters. The purpose of this move is to further standardize the decision-making process and effectively reduce the decision-making risks of enterprises. At the same time, all members of the leadership of the Wind Power Business Unit and personnel in key positions have solemnly signed the Integrity and Self-discipline Commitment Letter, demonstrating the firm determination of the leadership to be honest in performing their official duties, and practice self-discipline and self-improvement.

Our aim is to build a comprehensive mechanism for the punishment and prevention of corruption, effectively avoiding the integrity risks faced by officials at all levels and personnel in key positions. We are committed to continuously consolidating the long-term work mechanism for promoting integrity and combating corruption, strictly regulating the professional ethics of officials and personnel in key positions, and ensuring the healthy, rapid, and sustainable development of the enterprise.

At the same time, we are continuously strengthening the standardization of discipline inspection and supervision work, effectively safeguarding the legitimate rights and interests of informants. We ensure that issues are investigated and resolved swiftly and accurately, enhancing the efficiency of handling petitions, and making efforts to maintain the enterprise's integrity and positive image.

In 2024, the management of the Wind Power Business Unit actively participated in the special training on anti-corruption, attending a total of 10 sessions throughout the year. This demonstrates the management's high regard for integrity in professional conduct and their firm commitment. At the same time, remarkable results have also been achieved in anti-corruption training for employees. The training has covered a total of 1,458 employees, achieving extensive participation and ensuring that employees can fully understand and practice the principles and requirements of combating corruption and upholding integrity.

Training covers all employees

1458



Description	Unit	2023	2024
Number of bribery cases concluded	Pcs.	0	0
The average hours of anti-corruption training received by employees	Hour	40	43
Number of employees receiving anti-corruption training	Person(s)	1350	1458
Sessions of anti-corruption training received by employees	Session	30	34
Number of management personnel receiving anti-corruption training	Person(s)	25	27
The average hours of receiving anti-corruption training received by management personnel	Hour	40	42
Sessions of anti-corruption training received by the management personnel	Time(s)	8	8

CASE Integrity Activity of the Wind Power Business Unit: Practical Case of Integrity Culture Construction of the Wind Power Business Unit

In order to deepen the construction of an integrity culture, the Wind Power Business Unit organized personnel in key positions to go to Changsha, Xiangtan, Xiangxiang and other anti-corruption education bases for field study to strengthen their awareness of integrity. During these off-site supervision activities, the Unit integrated integrity education with warning education by jointly viewing the warning film "Strict Family Conduct", thereby normalizing the practice of warning education. At the same time, Party members and cadres were guided to sign the Family Integrity Commitment Letter, promoting integrity through positive family conduct and establishing a solid anti-corruption defense line within families.



We made full use of platforms such as off-site classrooms and themed Party Day events to conduct 12 sessions of the "Promote Discipline and Strengthen Work Ethic" activity, covering 548 participants. Through the diversified learning method of "centralized+independent+remote+ any time", all employees were driven to deeply study the "two specifications and one opinion", and publicity videos were made for promotion in the company to create a strong learning atmosphere.

During the reporting period, we conducted special deployment on integrity work during the democratic life meetings and Party committee meetings. This process identified 31 issues, and all of them have been rectified. Additionally, we have formulated and implemented 77 measures, and all of them have already been put into action.

The Wind Power Business Unit practices the concept of integrity through concrete actions. A series of measures have not only enhanced the integrity and self-discipline awareness of cadres and employees but also facilitated the deep integration and widespread dissemination of integrity culture.

◆ Whistleblower Protection

The channels for discipline inspection and supervision, as well as petitions, are smooth and diverse. They include in-person visits, written submissions, telephone hotlines, online platforms, and issue clues transferred by various departments, ensuring that all types of reporting information are received promptly. In order to protect the legitimate rights and interests of informants, we strictly implement the relevant provisions in CRRC Discipline Inspection and Supervision Measures for Handling Petition Reporting, and establish a comprehensive and strict whistleblower protection mechanism. When

handling real-name reporting cases, we adhere to the following core disciplinary principles:

- No one in the organizing unit is allowed to privately withhold or destroy any reported materials.
- It is strictly prohibited to transfer the reported materials to the reported units or persons.
- It is not allowed to disclose or make public the identity of informants.
- If the staff of the organizing unit are close relatives or have other interests with the person being reported, which may affect the fair handling of the issue, they should proactively propose to recuse themselves.
- If the informant explicitly requires a specific staff member to recuse themselves, the decision shall be made according to relevant requirements. Personnel who violate the above disciplinary requirements shall bear corresponding disciplinary or legal responsibilities.

For staff who violate the above disciplinary requirements, their corresponding disciplinary responsibilities and even legal responsibilities will be investigated in accordance with laws and regulations to ensure that the seriousness and effectiveness of the whistleblower protection mechanism are firmly upheld.

The Wind Power Business Unit has diversified reporting and feedback channels to facilitate stakeholders to complain problems at any time:

- Informants' hot-line: 15197323628. Reports can be accepted during 9:00-12:00 a.m. and 13:00-17:00 p.m. on legal working days. You may leave messages after non-working hours.
- Reporting e-mail: 20128832@cszic.com
- Delivery of reporting letters: There is a reporting mailbox at the south staircase on the 1st floor of Industrial Park Office Building, Area 58, Liyu Industrial Park, Tianyuan District, Zhuzhou City, Hunan Province
- In-person reporting: You can directly go to the Party-masses Work Department of CRRC Zhuzhou Institute Co., Ltd. Wind Power Business Unit.
- Reporting by mail: Party-masses Work Department, 20/F, Building A, Dual Carbon Tower, Shifeng District, Zhuzhou City, Hunan Province, postal code 412000. We are committed to maintaining strict confidentiality regarding informant information.
- We encourage informants to submit reports under their real names, but we also accept anonymous reports.

◆ Integrity Management for Suppliers

We strictly abide by the Company's established supplier management system and specially formulate the Management Measures for Suppliers of Wind Power Business Unit, which comprehensively standardizes the full life cycle management for suppliers from admission to withdrawal, as well as the maintenance of supplier relations and strict control of misconduct.

In supplier management, we attach particular importance to integrity construction and strengthen supervision through a rigorous review process. The Centralized Procurement Center of the Wind Power Business Unit shall earnestly identify and dispose of suppliers' misconduct according to the Identification Standards for Suppliers' Misconduct (General), and regularly report relevant information to the Operation Management Department of the Company, so as to ensure that any violations can be found in time and properly handled.

For suppliers who violate the Company's regulations, have dishonest behaviors, or cause major economic losses and serious social impacts to CRRC Zhuzhou Institute Co., Ltd. and its subsidiaries, we will include them in the "blacklist" after verification according to strict standards, cancel their qualification as qualified suppliers. A three-year suspension of cooperation will be implemented, during which we will not accept any qualification access applications from them. In addition, we also strictly follow the "blacklist" requirements of important customers such as China Railway, ensuring that suppliers engage in clean business practices. We will jointly maintain a transparent and integrity-driven commercial environment.

During the reporting period, we have comprehensively evaluated 67 newly joined suppliers in terms of environment, labor rights and ethics, and all suppliers have signed anti-corruption agreements, with a signing ratio of 100%.

This year, after rigorous review, no anti-corruption-related issues were found among all contractors/suppliers. This highlights our strong determination and significant achievements in promoting integrity among suppliers.

Adhere to Responsible Marketing

The Wind Power Business Unit has always strictly abided by laws, regulations and industry norms such as the Law Against Unfair Competition of the People's Republic of China, the Advertising Law of the People's Republic of China and the Trademark Law of the People's Republic of China, adhered to the core principle of integrity management, and is committed to maintaining and promoting a healthy and fair market competition environment.

We actively promote a responsible marketing strategy, emphasizing that employees must uphold high professional ethics and ensure that the information about products and services delivered to each customer and consumer is based on truthfulness and accuracy. We firmly reject any false or misleading publicity, and are committed to building a transparent and trustworthy brand image.

The Wind Power Business Unit, with its rigorous marketing management system and strong compliance awareness, consistently adheres to the principles of integrity, fairness, and justice to carry out various business activities. During the reporting period, there was no violation of laws and regulations on anti-unfair competition, no involvement in any unfair competition legal disputes, nor any punishment by regulatory authorities due to improper marketing publicity.

Implement Responsible Procurement

CRRC Zhuzhou Institute Co., Ltd. Wind Power Business Unit always adheres to the spirit of the rule of law and strictly abides by relevant laws and regulations such as the Bidding Law of the People's Republic of China and the Civil Code of the People's Republic of China, so as to ensure the fairness and transparency of procurement activities and the legal compliance of contractual behavior and maintain the good operation order of enterprises.

In 2024, the Wind Power Business Unit upgraded the procurement management system and focused on revising the Supplier Management Measures of the Wind Power Business Unit and the New Material Development Management Measures.

We focus on building a more sound and efficient supplier management system, covering the whole chain from supplier development access to withdrawal management. By optimizing management processes and methods, we ensure that the supplier management of the Wind Power Business Unit (excluding technical categories) is both efficient and transparent, thereby continuously enhancing our supplier management level.

In terms of procurement implementation, we have strictly defined the procurement process for various materials and services. Through standardized and regulated operations, we lay a solid foundation for agile responses and stable supply in the supply chain. At the same time, we have specially clarified the special management rules for purchased materials such as spare parts and vulnerable and consumable parts, and carried out special management according to the Management Rules for Spare Parts Material Code Application and Procurement Basis Issued by the Wind Power Business Unit.

We actively advocate for local procurement, focusing on CRRC and the affiliated enterprises within the company. We have established a comprehensive collaborative system that encompasses the entire chain from the R&D and manufacturing to O&M of key components such as blades, gearboxes, generators, converters, pitch control systems, and control cabinets. Additionally, we achieve comprehensive collaboration in small and medium-sized parts (small and medium-sized structural components, auxiliary materials, packaging materials) and raw materials, facilitating the efficient and coordinated operation of the industrial chain.

In order to continuously improve the professional level of procurement management, we encourage team members to actively study. In 2024, two employees successfully obtained the CPPM certificate. Currently, people who have obtained this certificate account for 23.1% of category managers.

CASE

Centralized Procurement of the Wind Power Business Unit: Two "Specifications" and One "Opinion" Strengthen the Honest and Responsible Procurement Mechanism

In 2024, we closely followed the steps of the Group Company, deeply embedding a culture of integrity. With "Two Specifications and One Opinion" as the action program, we aimed to establish a new benchmark for responsible procurement. All members of the Centralized Procurement Center of the Wind Power Business Unit have engaged in an in-depth study of the Integrity Code of Conduct for Purchasing Business-related Personnel and the Integrity Code of Conduct for Marketing Business-related Personnel, understood the spirit of the Opinions on Integrity Co-construction and Building Close and Clean Business Relationship of the Leading Party Members Group of China State Railway Group Co., Ltd. and the CPC Committee of CRRC Corporation Limited, and clarified the integrity code and behavior boundary in procurement and marketing business.

In the procurement practice, we adhere to principles and specifications and integrate integrity and responsibility into every step of procurement to ensure that the procurement process is transparent and compliant. At the same time, we are committed to establishing a close and clean relationship with suppliers. We will not only work closely but also strictly adhere to the bottom line of integrity, so as to work together to create a clean business environment.



CASE

Driven by Digitization and Escorted by Internal Supervision: New Practice of Responsible Procurement Management

The Wind Power Business Unit actively responds to the call for digital transformation and accelerates the construction of a digital supply chain platform. Through this platform, we have achieved systematic calculations and visual displays of procurement indicators such as the internal matching rate and the centralized procurement rate. This provides strong support for timely adjustments in procurement strategies and lowering operational costs.

While promoting digital transformation, the Wind Power Business Unit also strengthens internal supervision of procurement to continuously improve its management system. Through the combination of monthly routine supervision and special supervision, in-depth inspection is carried out on supplier management and contract management. As of December 2024, 106 improvement items have been identified, with a high rectification closed-loop rate of 94.34%, significantly improving the standardization of procurement. At the same time, systems such as the Management Measures for Suppliers of the Wind Power Business Unit, the Management Measures for Secondary Suppliers and the New Material Development Management Measures have been continuously improved to reduce management loopholes. When faced with inspections from the Group Company, the Wind Power Business Unit conducts a thorough analysis of its shortcomings, identifies areas for improvement, and proposes 25 specific measures. At present, 20 items have been completed as planned, continuously promoting procurement management to a higher level. This demonstrates the positive practice and remarkable results of the Wind Power Business Unit in responsible procurement.

Respecting Nature

Embracing Wind Power for Green Coexistence

CRRC Zhuzhou Institute Co., Ltd. Wind Power Business Unit continuously improves and optimizes its environmental management system, striving to play an active role in addressing climate change and working to mitigate its adverse impacts. We continuously improve the level of environmental management, carry out in-depth and detailed investigations of environmental risks and hidden dangers, and devote ourselves to improving environmental performance and promoting the harmony and balance of the ecosystem. We firmly believe that through unremitting efforts and practical actions, we can uphold our respect for and protection of the environment, contributing to the creation of a green, low-carbon, and sustainable future.

Core issues

Energy conservation and carbon reduction Addressing climate change
Emission management Utilization of resources and energy Biodiversity

Contributions to SDGs





Climate Challenge, Proactive Response

Climate change is one of the major and urgent challenges facing human society today. In the context of the increasingly severe climate crisis, accelerating the advancement of green and low-carbon actions, strengthening international cooperation, and implementing proactive and effective measures to address climate change have become a common consensus among all sectors globally.



CRRC has actively responded to this global trend and formulated the Action Plan for Carbon Emissions Peak and Carbon Neutrality, which clearly puts forward the ambitious goal of "3550" carbon neutrality: striving to achieve carbon neutrality at the operational level by 2035 and achieving the vision of carbon neutrality in the whole value chain by 2050. As an important member of CRRC, CRRC Zhuzhou Institute Wind Power Business Unit is fully aware of its responsibilities and missions. Focusing on the strategic deployment of the Group Company, it coordinates the two major tasks of carbon reduction and expanding green development to accelerate the green and low-carbon transformation.

Wind power, as a renewable energy source with mature technology, low carbon, environmental protection and low LCOE, plays an important role in mitigating climate change. As a leading enterprise in the global wind turbine manufacturing industry and an outstanding provider of overall solutions for wind power, CRRC Zhuzhou Institute Wind Power Business Unit regards coping with climate change as its own responsibility and goes all out to promote wind power products and services worldwide. We understand that managing the risks and opportunities posed by climate change is essential. Therefore, we continue to optimize green products, consolidate and strengthen the environmental management system, and fully implement the green operation mode to flexibly respond to various risks and challenges. At the same time, we seize the opportunities given by the times, contribute our wisdom and strength to the low-carbon transformation and green development of the whole society, and jointly cope with climate change.

◆ Main Climate Change Risks and Their Response Measures

Type	Risk Category	Potential Impact	Risk Response
	Policies and regulations	Stricter regulation and severe climate problems have prompted the government to strengthen climate compliance supervision. The government has put forward emission reduction requirements for various industries. Enterprises need to build low-carbon and green management and production systems, strengthen ESG practice and information disclosure, and implement the "carbon peaking and carbon neutrality" goals, which will increase their operating costs to a certain extent. In addition, policy changes may affect support policies such as wind power subsidies and tax incentives, increasing project uncertainty.	It is essential to keep pace with policy trends and timely develop and revise internal regulations to avoid carbon compliance risks. Integrate ESG into strategy and business, actively promote green operation and green supply chain, and advocate for green office practices among employees. At the same time, we will flexibly adjust the market strategy and strengthen communication and cooperation with the government and industry associations.
Transformation risk	Market competition	With increasing global attention to climate change and environmental awareness, energy policies may shift towards cleaner and lower-carbon development. As more enterprises enter the wind power segment, market competition is likely to intensify, affecting the market share and profitability of the Wind Power Business Unit. At the same time, climate change may impact the supply of raw materials and logistics, increasing supply chain costs. Additionally, the carbon emissions of suppliers can also affect the overall carbon footprint of the company.	Enhance product quality and service level, strengthen brand building. Reduce costs through technological innovation, and improve market competitiveness. Establish a diversified supply chain system, actively promote the construction of a green supply chain, strengthen strategic cooperation with suppliers and improve the resilience of the supply chain.
	Technology	With the progress and innovation of science and technology, wind power technology may be continuously updated. If the Wind Power Business Unit cannot keep up with the pace of technological development in time, it may face the risk of backward technology and declined market competitiveness.	Strengthen technological innovation and R&D investment, and cooperate with scientific research institutions and universities to carry out cutting-edge technology research. Meanwhile, strengthen the promotion and application of new technologies and products.

Type	Risk Category	Potential Impact	Risk Response
Physical risks	Acute	Extreme weather events: Climate change may lead to an increase in the frequency and intensity of extreme weather events (such as typhoons, tornadoes, rainstorms, etc.). These weather conditions may not only directly damage the wind power facility, but also lead to unstable operation of wind power systems, increasing O&M costs and associated risks.	Optimize the design of wind power equipment and enhance its wind resistance and weather resistance. At the same time, enhance the extreme weather monitoring and early warning system and formulate emergency plans to ensure rapid response and recovery of operation under extreme weather conditions.
		Climate change may lead to changes in the distribution and intensity of global wind resources. In some areas, the wind force may strengthen while in others it may weaken. This change will directly affect the power generation efficiency and output of wind power products, thus having a direct impact on the sales and market layout of the Wind Power Business Unit.	Strengthen the investigation and prediction of wind energy resources, and use advanced meteorological technology and big data analysis to predict the changes in wind energy resources in the future. This helps the Wind Power Business Unit to more accurately assess the market potential and adjust the product layout and strategic planning.
	Chronic	High temperature causes the efficiency of wind power equipment to decrease, the output to reduce, and easy to cause thermal expansion, increasing the risk of mechanical failure. Sea level rise threatens coastal wind power facilities, which can lead to loss of assets and disruption of operations	Plan ahead and conduct in-depth research, upgrade the technology and improve cooling systems to enhance equipment's high-temperature resistance; establish monitoring systems to strengthen maintenance and extend lifespan; reinforce coastal facilities to improve disaster resistance; develop emergency plans and strengthen drills and training; consider climate impacts and diversify project layouts; improve risk management to mitigate potential losses.

◆ Main Climate Change Opportunities and Their Response Measures

Type	Risk Category	Potential Impact	Risk Response
Transformation opportunities	Market opportunities	The state has issued favorable policies for the development of new energy industry to vigorously support wind power, photovoltaic and other industries. At the same time, the global demand for renewable energy continues to grow, and emerging markets such as Africa and Southeast Asia show great potential for wind power development.	Based on market demand, steadily advance the R&D and manufacturing of wind power equipment, focusing on improving wind turbine generation efficiency and reliability, while enhancing the level of intelligent services. At the same time, conduct in-depth market research to accurately identify and assess the potential and risks of emerging markets; and flexibly adjust supply chain strategies to ensure efficient operations and cost control in these emerging markets.
	Products and services	The national "carbon peaking and carbon neutrality" policy strongly drives the rapid development of clean energy and low-carbon environmental protection products, showcasing a robust growth trend. As public awareness of environmental protection increasingly rises, the acceptance and support for renewable energy significantly improves. Strengthening the environmentally friendly characteristics of the company's products and services will help the company win favor from customers and society.	Increase R&D investment, deepen industry-research cooperation, continuously promote wind power technology innovation, and improve product performance and market competitiveness. At the same time, we focus on developing environmentally friendly green WTGS products and continuously explore and expand new products and services to meet customers' preferences for low-carbon products and services.

Resource Utilization and Efficient Recycling

CRRC Zhuzhou Institute Wind Power Business Unit actively responds to the national green development strategy by integrating energy conservation and emission reduction into all aspects of production and operational development. It practices low-carbon environmental protection and vigorously promotes the development of a circular economy. We continuously strengthen and optimize our energy management system, effectively fulfilling the company's energy management responsibilities and promoting a green transformation.

The Wind Power Business Unit obtained ISO 50001 Energy Management System certification in 2023, valid until December 29, 2026. We integrate energy management deeply into our daily operations, setting clear goals and energy-saving plans. Through concrete actions, we practice the concept of green development and drive the company's sustainable growth.



Energy Saving and Consumption Reduction

The Wind Power Business Unit strictly adheres to the guiding principles of the Energy Conservation Law of the People's Republic of China and the Measures for the Supervision and Administration of Energy Conservation and Ecological Environment Protection by Centrally Administrated State-owned Enterprises. To fully implement the relevant laws and regulations on energy conservation established by the state, as well as the policies and standards set by the group company, we have formulated the Management Measures for Energy Conservation.

We have established a dedicated organization for the daily management of energy conservation to ensure the systematic and efficient advancement of energy-saving initiatives. This organization is committed to implementing meticulous management of energy resource usage during operational processes, continuously optimizing energy allocation and utilization efficiency. By adopting advanced water-saving technologies, optimizing material usage processes, promoting efficient energy-saving equipment, and implementing a circular packaging system, we strengthen the management of water resources, materials, energy, and packaging. This approach aims to reduce resource waste and achieve the goals of energy saving and consumption reduction. At the same time, we actively promote the concept of energy conservation, focusing on enhancing energy-saving awareness among all employees.

After thorough analysis, the Wind Power Business Unit has developed the Energy Performance Improvement Opportunities List and Ranking Table. The list comprehensively identifies and outlines potential energy improvement opportunities across 10 key devices, facilities, systems, and processes, including workshop lighting systems, bearing heating systems, air compression systems, distribution rooms/microcomputer rooms, and office lighting. We have not only conducted an in-depth analysis of the primary energy usage status in various processes but also explored the key factors affecting energy efficiency. Based on this analysis, we have identified a series of targeted and practical key improvement measures.

On this basis, in 2024, we specifically developed the Energy Goals and Measures Plan, implementing a series of key initiatives for energy saving and consumption reduction, which have yielded significant results.

- Reasonably formulate process flows and plan process layouts, optimize site process layouts to shorten transfer distances, strengthen production organization and command, and ensure the efficient use of equipment.
- Optimize the bearing heating system by replacing it with more advanced induction heaters to reduce heating time. Additionally, install insulation covers to decrease heat loss, thereby enhancing the efficiency of the bearing heating process.
- Improve management systems by revising and improving energy-saving related policies, establishing corresponding energy-saving standards, and enhancing energy-saving inspections and assessments.
- Optimize equipment process parameters by organizing operation instructions and operating procedure parameters. Rationally select parameter ranges and strengthen the process inspection of energy-consuming equipment to ensure the achievement of energy goals.
- Enhance central air conditioning management by establishing economic operation regulations and technical control measures for the central air conditioning system. Strictly control the set temperature for air conditioning, and intensify energy-saving inspections and assessments for the air conditioning systems.
- Optimize the efficiency of air compressors by replacing refrigerated dryers with adsorption dryers and implementing pressure reduction trials. Rationally choose the allowance space, and strengthen inspections of pipelines and pneumatic tools to prevent escape, spill, drip or leakage.
- Enhance the management of air conditioning in distribution rooms and microcomputer rooms by increasing temperature and humidity monitoring. Establish reasonable air conditioning set temperature guidelines to reduce energy consumption, and strengthen energy-saving inspections and assessments of air conditioning systems.
- Implement energy-saving retrofitting of lighting and ventilation systems by selecting energy-efficient LED fixtures and gradually phasing out outdated lighting equipment. Prioritize the purchase of energy-saving fans while systematically eliminating old and inefficient industrial fans, thereby improving the effectiveness of lighting and ventilation.

The above measures have been verified through energy consumption calculations and successfully achieved the expected goals. They have significantly enhanced the management efficiency and energy utilization of the Wind Power Business Unit.

Resource Utilization

Based on the Technical Specifications for the Disassembly of Remanufactured Mechanical Products, the Wind Power Business Unit has established the Process for the Disassembly and Reuse of Semi-Finished and Finished Products. This process outlines the disassembly procedures, specific work content, and related requirements for semi-finished and finished products within the Unit in detail.

To create a green supply chain, we have fully implemented a lifecycle resource and environmental data collection, analysis, and evaluation system. Additionally, we have established an information-sharing, transmission, and disclosure platform between upstream and downstream enterprises, achieving effective information management. This platform effectively integrates information from upstream and downstream enterprises regarding resource and energy consumption, pollutant emissions, green material management, and resource utilization efficiency. It enables comprehensive data collection, efficient management, and real-time monitoring of information. At the same time, we have standardized the recycling process for waste products and packaging through CRRC's green circular economy trading system.

We have clearly defined the business processes for the reuse of internal capitalized products and materials (including recycled and disassembled materials) as well as externally available materials. The implementation process for the reuse of products and materials (including recycled disassembled materials) has been explicitly outlined, along with the responsibilities of each role involved. To ensure the safe use of reused materials in delivered products, we strictly adhere to the company's risk assessment process.

In the management of recycling equipment, we have adopted advanced systems that fully utilize big data, IoT, and cloud computing technologies. This integration makes the recycling process measurable, reportable, and verifiable. We are committed to promoting the recycling and efficient utilization of resources. In 2024, the total mass of a single 5MW WTGS in the Wind Power Business Unit is 111,133 kilograms, of which the mass of parts that can be remanufactured reaches as high as 110,120 kilograms.

Quality ratio of remanufactured parts for a 5MW wind turbine

99.1%



Key Performance Schedule


	Description	Unit	2023	2024
Water resources	Amount of fresh water consumed	t	82,478	119,695
	Consumption of non-renewable materials	t	677.70	617.93
Material	Consumption of toxic and hazardous materials	t	0	0
	Intensity of material consumption	t/RMB 1,000,000	10.66	9.44
	Fossil fuel consumption	tce	0	0
Energy	Non-fossil fuel consumption	tce	216.64	287.86
	Proportion of non-fossil fuel use	%	100	100
	Electricity	10,000 kWh	176.27	234.22
	Total energy consumption	tce	216.64	287.86
	Comprehensive energy consumption intensity	tce/RMB 1,000,000	0.031	0.040

Note: The material consumption data provided is based on the actual data of 5MW products.

Environmental Management, Optimization and Improvement

CRRC Zhuzhou Institute Wind Power Business Unit has established a comprehensive and systematic environmental management system based on the ISO 14001 international standard. We strictly comply with national environmental protection laws and regulations, including the Environmental Protection Law of the People's Republic of China, the Law of the People's Republic of China on Water Pollution Prevention and Control, Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, the Law of the People's Republic of China on Prevention and Control of Pollution from Environmental Noise, and the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste. This ensures that all activities meet environmental protection requirements. By adopting the PDCA cycle operating model, we continuously optimize our environmental management processes and continuously improve our environmental performance levels.

In 2024, we have formulated the Management Plan for EHS System of Wind Power Business Unit in 2024, specifying 5 environmental management indicators.



- ◆ Zero serious or major environmental pollution accident
- ◆ Zero event of a significant or severer environmental impact
- ◆ No major environmental protection violations
- ◆ Control the total pollutant emissions, chemical oxygen demand, and emissions of major pollutants such as ammonia nitrogen within the green factory indicators
- ◆ Conforming to the standards of CRRC Zhuzhou Institute and the state in terms of the disposal of hazardous solid waste, and no environmental notification or punishment from local governments

	Description	Unit	2023	2024
Carbon emissions	Carbon emissions (Scope 1)	tCO ₂ eq	225.60	225.60
	Carbon emissions (Scope 2)	tCO ₂ eq	454.62	903.39
	Total carbon emissions (Scope 1 and 2)	tCO ₂ eq	680.22	1128.99
	Carbon emissions per unit revenue (Scope 1)	tCO ₂ eq/RMB 1 million	0.03	0.03
	Carbon emissions per unit revenue (Scope 2)	tCO ₂ eq/RMB 1 million	0.06	0.13
	Carbon emissions per unit revenue (Scope 1 and 2)	tCO ₂ eq/RMB 1 million	0.10	0.16
	Carbon emissions per unit output value (Scope 1 and 2)	tCO ₂ eq/RMB 1 million	0.10	0.16

Note 1: Data coverage of Scope 1 and Scope 2: Greenhouse gas accounting is carried out for the Wind Power Business Unit according to ISO 14064-1:2018;

Note 2: Scope 1 mainly involves the fugitive emission of gases such as air conditioning refrigerant. The Wind Power Business Unit has neither fixed combustion sources nor mobile combustion sources, and has no its own vehicles. Scope 2 refers to the emission generated by purchased electricity;

Note 3: The emission factor of Scope 1 is from IPCC2021; the electricity emission factor of Scope 2 is from the Announcement on the Release of Carbon Dioxide Emission Factors for Electricity in 2022 issued by the Ministry of Ecology and Environment and the National Bureau of Statistics.



System Construction

In order to comprehensively protect and improve environmental conditions, effectively prevent and control pollution and other public hazards, and fully ensure the physical and mental health and safety of employees, actively promote the in-depth development of ecological civilization and facilitate the Company to achieve sustainable development goals, the Wind Power Business Unit hereby formulates the enterprise standard, the Management Measures for Environmental Protection. The Measures clearly delineate the specific responsibilities of various departments, including the Investment Planning Department, Technical/Process Department, Manufacturing Department, Centralized Procurement Center, and Environmental Protection Management Department, in environmental protection efforts. Additionally, it outlines specific measures for pollution prevention and control, emergency management mechanisms for environmental incidents, and stringent requirements for supervision and assessment. This ensures that environmental protection efforts are comprehensively, systematically, and effectively implemented and executed.

At the same time, we have developed the Circular Material Management and Disposal Measures for CRRC Zhuzhou Institute Wind Power Business Unit, aimed at further strengthening the management of circular materials. This document standardizes the disposal processes for circular materials, clarifies responsibilities at all levels, effectively mitigates risks, and ensures the safety of company assets. Additionally, it strives to maximize the benefits of circular material disposal.

System Certification

After a rigorous and detailed audit process by a third-party certification body, we received the ISO 14001:2015 certification for our environmental management system in July 2023. This certification is valid until October 26, 2026. This not only represents a high recognition of our professional capabilities in the field of environmental protection but also serves as a strong testament to our ongoing commitment to environmental protection and sustainable development.



Waste Management

The Wind Power Business Unit strictly implements waste management regulations. All manufacturing bases under its jurisdiction have legally obtained discharge registration forms and rigorously adhere to the requirements specified in the forms. This includes the designated locations and quantities of sewage outlets, methods of discharge, discharge destinations, types of pollutants, permissible discharge concentrations, allowable discharge volumes, and compliance with applicable emission standards.

In terms of wastewater management, the Wind Power Business Unit primarily sources wastewater from domestic sewage, while the WTGS assembly process does not generate any wastewater. We ensure that all wastewater discharges strictly adhere to the regulations stipulated in the environmental impact assessment report, discharge permits, and relevant national standards, achieving compliant emissions.

Additionally, the Wind Power Business Unit does not generate any waste gas throughout the entire production process. There are no fixed or mobile source equipment facilities producing gas emissions.

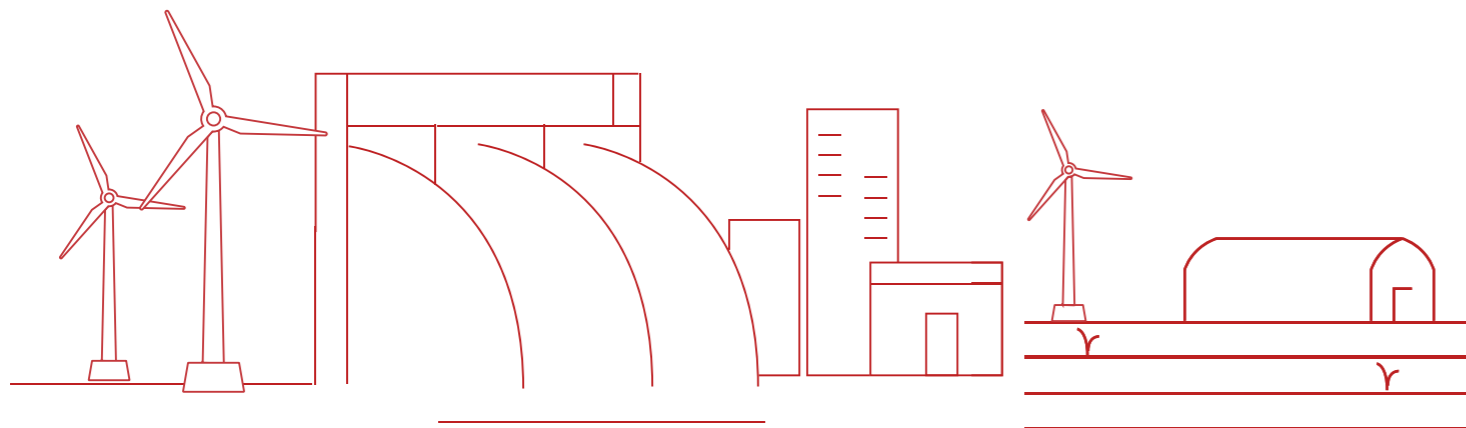
For solid waste, the primary source comes from discarded packaging materials during the product assembly process. We consistently adhere to the relevant regulations outlined in the Circular Material Management and Disposal Measures for the proper and safe handling and disposal of such waste, ensuring that the environment is protected from contamination. At the same time, we actively advocate and promote the recycling of packaging materials, such as using faster-decomposing film packaging materials, in response to the concept of green development. In addition, we are continuously advancing the construction of a green supply chain based on the specific needs of different products and projects.

We also attach great importance to the management of hazardous wastes. During the production of WTGS products, hazardous wastes such as HW49 waste packaging materials and HW08 waste oil are managed through contracts with qualified companies for hazardous waste transfer. We conduct regular hazardous waste disposal to ensure that such waste is handled safely and in compliance with regulations.

At the same time, we place significant emphasis on environmental compliance management for our suppliers. We actively conduct training activities to ensure that suppliers fully understand and comply with environmental laws and regulations, working together to maintain a healthy ecological environment.

During the reporting period, we have consistently upheld environmental protection standards, strictly complying with relevant laws and regulations. There have been no incidents of environmental violations, and we have not faced any environmental penalties.

Description	Unit	2023	2024
Discharge amount of wastewater	t	65,982	95,756
Discharge of general solid waste	t	15.5	12.0
Comprehensive utilization rate of general solid waste	%	100	100
Generation of hazardous waste	t	19.41	27.66
Disposal amount of hazardous waste	t	14.57	27.66



Biodiversity Conservation as Priority

CRRC Zhuzhou Institute strictly complies with the Law of the People's Republic of China on Environment Impact Assessment, the Regulations on the Administration of Construction Project Environmental Protection, and other relevant domestic and international laws and regulations. We comprehensively integrate the concept of ecological protection into all stages of the project lifecycle, including planning, construction, operation, and decommissioning.

The Wind Power Business Unit consistently upholds its noble mission of ecological and environmental protection, actively responding to the strict requirements of the company's environmental management. In 2024, we conducted a thorough optimization and upgrade of the Environmental Protection Management Measures. This initiative aims to further enhance our environmental management standards, ensuring that the development and operation of wind power projects are more green and sustainable.

It is important to note that CRRC Zhuzhou Institute Wind Power Business Unit focuses on the research and development of core wind power technologies and the assembly of complete units, without involvement in other areas such as wind farm construction. Additionally, our manufacturing base is located far from core ecological protection areas. In the production process of WTGS assembly, we not only strictly adhere to pollution emission standards but also continuously reduce our environmental impact through ongoing technological innovations and management optimizations. We ensure that the assembly activities for wind power equipment are harmless and do not disturb the local biodiversity.

At the critical stages of project initiation and site selection, we are deeply involved in implementing rigorous and thorough environmental impact assessments. Our goal is to completely avoid any potential threats to biodiversity right from the source.

We recognize the vital importance of biodiversity for the ecological balance of the Earth. Therefore, the Wind Power Business Unit consistently adheres to a green and sustainable development philosophy during its operations, taking concrete actions to uphold the harmonious coexistence and prosperous development of nature.



Driven by Innovation

Sailing with the Wind to Embark on A New Journey

As a leader in the field of wind power technology and equipment, the Wind Power Business Unit is tasked with the mission of spearheading the green and low-carbon transition and implementing the "dual carbon" strategy. We leverage the group company's "3550" dual carbon strategy and adhere to the 6G philosophy, continuously exploring the boundaries of technology to develop efficient and environmentally friendly wind energy solutions. Through our concrete actions, we demonstrate our commitment and responsibility towards technological innovation, product quality, and sustainable supply chains. We are dedicated to collaborating with global partners to create a bright, green, and low-carbon future together.

Core issues

R&D and innovation Intellectual property protection
Product quality and safety Quality service Supply chain management

Contributions to SDGs

7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 
12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	13 CLIMATE ACTION 	17 PARTNERSHIPS FOR THE GOALS 



Foundation for R&d and Scientific Management



Technological innovation is the key to achieving high-quality development in the wind power industry and is also a crucial pathway to addressing environmental challenges and meeting societal needs. The Wind Power Business Unit drives the green transformation of the wind power industry through advanced research and development management and technological innovation.

To ensure strong support at the institutional and organizational levels, CRRC Zhuzhou Institute has meticulously established a comprehensive R&D system, including the Technology Innovation Management System Manual of CRRC Zhuzhou Institute and the Research Project Process Management Guidelines. These frameworks aim to guarantee standardized and streamlined operations in research and development activities. Building on this foundation, the Wind Power Business Unit has further refined a dedicated integrated product development documentation system. This system includes 17 core guiding documents, encompassing product development control procedures and overall design plans, providing comprehensive navigation for the entire lifecycle of wind power product research and development.

Leveraging the company's 11 national-level innovation platforms, including the National Engineering Research Center for Converter Technology and the National Key Laboratory for New Power Semiconductor Devices, the development of wind power technology benefits from exceptional technical support and experimental conditions. Leveraging the company's deep technological foundation and R&D capabilities, we have successfully established a WTGS technology platform that covers six key areas: system solution optimization, intelligent WTGS technology, grid-friendly technology, digital applications, testing and validation, and intelligent operation and maintenance services. This forms a comprehensive and environmentally friendly network of system technological support.

In terms of incentive mechanisms, we strictly adhere to the principle of stimulating maximum value creation through reasonable value distribution. We implement differentiated incentive programs that comprehensively cover all business sectors. Specifically for research personnel, we have established rewards for research projects and a Young Technological Talent Pool incentive, aimed at fully igniting the passion for research and innovation. At the same time, we employ a flexible matrix project management model that encourages research personnel to participate in cost-reduction projects across product lines. Additionally, we have established special "Military Pledge" project incentives, such as the Dreaming of the Deep Blue Offshore Unit Development Task Force and the Onshore Ultra-Low Cost Unit Development Task Force, to accelerate breakthroughs in key technologies and the application of research results.



Core guiding documents

17



National-level Innovation Platforms

11

Description	Unit	2023	2024
R&D investment	RMB 100 million	1.9	1.9
Proportion of R&D investment in main business income	%	2.7	2.8
Growth rate of R&D expenses	%	0.6	0.5
Number of R&D staff	Person(s)	204	235
Growth rate of R&D personnel	%	21.08	15.19



Tapping Potentialities and Increasing Efficiency for A Green Future

Leading the Way in Key Technologies

Leveraging the core technological foundations of "components", "algorithms" and "materials" at CRRC Zhuzhou Institute, we have successfully transferred key technologies such as system integration, conversion, and control from the rail transit field to the wind power field. We have deeply invested in advanced technologies including large wind power equipment, grid compatibility, environmental friendliness, and digital intelligence, thereby achieving comprehensive leadership in the technological domain. By establishing four key technical platforms, namely system solutions, environmental adaptability, grid-friendly technologies, and digital intelligence, we can provide optimal LCOE system-level solutions for various complex application scenarios, including large wind farms, mountainous regions, high altitudes, distributed wind power, and offshore wind energy.

In terms of large wind power equipment technology, the Wind Power Business Unit has made breakthroughs in integrated simulation and design technology for high-capacity floating WTGS, as well as floating control technology. Additionally, we have conducted in-depth research on key technologies related to the modularization and classification of WTGS, along with crucial design technologies focused on cost (DFC) for WTGS. These technological breakthroughs have not only improved the stability and efficiency of WTGS but also significantly enhanced the competitiveness of large wind power equipment products.

In the area of grid-friendly technologies, the Wind Power Business Unit has conducted in-depth research on electrical system modeling and simulation techniques for WTGS, as well as key technologies for active grid support. We have completed key technology research on grid-structured WTGS, converters, wind-storage integrated control, and low-frequency new transmission technologies. These advancements provide strong support for the large-scale grid integration and efficient utilization of wind power.

Key Technical Platforms

In the area of environmentally-friendly technologies, the Wind Power Business Unit actively researches and develops wind power technologies tailored for deserts, gobi deserts and arid regions, as well as key technologies for comprehensive anti-icing measures. The research and development of these technologies not only broaden the application scope of wind power but also ensure the stable operation of WTGS under extreme climatic conditions, laying a solid foundation for the sustainable development of wind energy.

In the domain of digital and intelligent technologies, the Wind Power Business Unit has successfully completed research on key technologies such as intelligent detection of WTGS status based on cloud-edge collaboration, advanced control technologies based on model predictions, and intelligent diagnosis and predictive maintenance of WTGS status. These advancements significantly enhance the efficiency and accuracy of operations and maintenance, providing robust technical support for the long-term stable operation of WTGS.

CASE

The 10MWD225 WTGS Tapping into the Offshore Low-wind-speed Market

To address the era of grid parity in offshore wind power and support the national "Carbon Peak and Carbon Neutrality" strategy, CRRC Zhuzhou Institute Wind Power Business Unit has developed the 10MWD225 WTGS, specifically designed for low-wind-speed maritime areas. The goal of this project is to balance power generation performance with the LCOE, thereby promoting the development of larger WTGS. The research and development have achieved breakthroughs in key technologies for high-power WTGS, significantly improving CRRC's design and manufacturing capabilities in the offshore wind power sector. This WTGS is the largest unit with the widest rotor diameter that has been successfully installed in low-wind-speed maritime areas of Shandong Province. It has also secured CRRC's first batch market order for offshore wind power, with an order capacity of 229.5MW and a total value of RMB 757 million. Its modular design and rapid iteration capabilities support the swift market launch of models suitable for the era of grid parity. At the same time, this project has stimulated the mass commercialization of key components, becoming an important cornerstone in CRRC's "Rail + Energy" strategy. It also marks a significant milestone for CRRC's entry into the offshore wind power sector.



CASE | Successfully Established Overseas 8.xMW Platform Prototype of CRRC Zhuzhou Institute

In December 2024, CRRC Zhuzhou Institute Wind Power Business Unit successfully erected its first 8.x MW platform prototype in the Zhangbei area of Zhangjiakou. This model is specifically customized for the markets in the Middle East, Central Asia, and Africa. This prototype is designed with a core focus on "high reliability and high performance." It adheres strictly to international standards and employs a differentiated grid frequency platform along with a modular design, ensuring its suitability for international markets.

The prototype integrates optimal design for LCOE and is equipped with ultra-long, flexible, and high-performance blades. It utilizes deep simulation and integrated technology for the complete machine, incorporating advanced features such as drivetrain resistance, independent pitch control, and lidar systems. These innovations effectively reduce load and enhance reliability. Additionally, the platform integrates intelligent control algorithms, endowing the WTGS with deep sensing and adaptive capabilities, enabling both individual and collective intelligence among the WTGSs.

The successful erection of this prototype provides strong support for the green energy transition in overseas markets, contributing to a more efficient and intelligent future for the global wind power industry.



CASE | Key Technologies Research and Application of Wind-storage Coupling Systems

In 2021, the Wind Power Business Unit officially approved the key technology research and application project of the wind-storage coupling system. The innovative concepts of "one WTGS, one storage" and "wind-storage coupling" were put forward for the first time in the industry. Focusing on proactive support technologies for new energy grid integration under the "two high proportions" power system, this initiative actively responds to CRRC's research direction on the coupling of new energy generation and energy storage technologies. By integrating new energy grid simulation, grid connection control, wind-storage coupling, and cluster control technologies, it has successfully achieved integrated collaborative grid control for "wind-PV-storage". This provides a strong technical foundation for new energy system solutions.

As of the end of the reporting period, based on the project outcomes, CRRC Zhuzhou Institute Wind Power Business Unit has successfully signed multiple market orders, including the "one WTGS, one storage" project at Anhui Huaneng Mengcheng Xuehu Wind Farm and the off-grid project integrating PV+ESS+DG for the Ningxia Branch of CHN Energy. Additionally, the wind (PV) storage energy management system has been applied in various other projects, achieving significant economic benefits. The completed wind-PV-storage coupling product ("one WTGS, one storage") and the station-level energy management system provide effective proactive support solutions for new energy grid connection from both the individual unit and centralized station control perspectives. These achievements showcase the innovative capabilities and market competitiveness of CRRC Zhuzhou Institute in the field of new energy technology.

CASE | Research and Application of Key Technologies for WTGS Master Control System Based on the Rail Transit Control Platform

CRRC Zhuzhou Institute Wind Power Business Unit has successfully completed the development of software and hardware for the WTGS master control system based on the rail transit control platform. Through technological breakthroughs, the communication performance is improved with a response speed of 1ms; advanced control algorithms are proposed to reduce the fatigue load and limit load of key components by 10% and 8% respectively; intelligent safety protection is realized to ensure the safety and reliability of WTGS. The system meets the needs of a variety of models. By 2024, more than 500 WTGSs have been applied, generating economic benefits of over RMB 60 million, and 800 WTGSs are expected to be used every year in the future.

Through project practice, master the core technology of PLC and achieve major breakthroughs in wind power control technology. At the same time, it deeply analyzes the pain points of the industry and lays out intelligent security control technology and real-time protection technology to realize global security monitoring and intelligent control. Through the collaboration of CRRC's industrial chain and with the complete machine as the traction, the incremental development of supporting enterprises is driven, laying a solid foundation for subsequent product development and aftermarket technology accumulation.

CASE | CRRC Zhuzhou Institute Wind Power Business Unit Helps the Offshore Wind Power Project in Rushan to be Connected to the Grid at Full Capacity, with An Annual Power Generation of 700 Million kWh

On October 26, 2024, the second phase of the Rushan Project in the SPIC Shandong Peninsula South Offshore Wind Power Base was successfully connected to the grid, marking the full-capacity grid connection of China's largest single parity offshore wind power project. This project uses 27 sets of 8.5MW semi-direct drive offshore WTGSs from CRRC Zhuzhou Institute Wind Power Business Unit, which have the characteristics of low LCOE, corrosion resistance and salt spray resistance. Customized blades, lightweight structure, high fault-tolerant electrical system and other technologies are used to ensure aerodynamic performance and reliability, and cutting-edge rail transit technologies such as cloud-edge collaborative PHM and digital twin of WTGSs are introduced to improve operation and maintenance efficiency.

The WTGS of the Rushan Project generates 18 degrees per circle at the rated wind speed, with a single unit generating about 26 million kWh annually. The total annual power generation of the project reaches 700 million kWh, which is sufficient to meet the electricity demand of 360,000 households. At the same time, the project can reduce coal consumption by 205,000 tons and carbon dioxide emissions by 520,000 tons every year, with remarkable environmental benefits.

CRRC Zhuzhou Institute won the Quality Supplier Award for its outstanding performance in the Rushan Project, and the project team members also won the titles of Excellent Striver and Engineering Service Model respectively.



CASE | CRRC Zhuzhou Institute's Wind Power Technology Shines at WindEnergy Hamburg

At the WindEnergy Hamburg on September 24, 2024, CRRC unveiled its brand-new 20MW floating WTGS "Qihang", realizing the full coverage of the complete wind turbine power level from 16 MW to 20 MW. As the core masterpiece of the Wind Power Business Unit, "Qihang" not only represents CRRC's profound accumulation in the field of wind power technology but also demonstrates its keen insight into wind power development in deep sea areas.

The reliability and cost control capability of the full-coefficient intelligent WTGS led by "Qihang" have been greatly improved through the industry-leading environmental adaptability design, modularization-based high scalability design, "ultra-perception" high intelligence design, box-type substation integrated overhead side-hung design, doubly-fed technology design, split transportation and hoisting design, etc.

In addition, the intelligent O&M management scheme displayed at the WindEnergy Hamburg uses the WTGS health management system and multi-sensing technology to realize intelligent fault early warning and active risk defense, thus installing a "smart brain" for the WTGS. In terms of after-market services, power generation efficiency is improved through the upgrading of old equipment to integrate high-end technology; building "intelligent mobile factories" to realize the resource utilization of solid waste; and relying on a strong after-sales service system to ensure that customers enjoy efficient professional services throughout the life cycle of equipment.

With the "Qihang" as a new starting point, we are determined to lead the wind power industry towards a smarter and more efficient future.



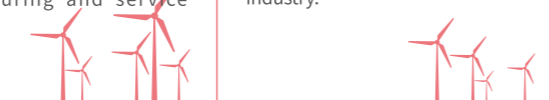
Promotion of Industry Progress

CRRC Zhuzhou Institute Wind Power Business Unit always keeps up with the pace of global energy transformation, takes technological innovation as the core engine, and is committed to climbing to the highest point of wind power technology, leading and promoting the continuous progress of the whole industry.

On the road of scientific research and exploration, we have made innumerable achievements. Among the national scientific research projects undertaken, the two major subjects of "Key Technologies and Applications of WTGS Master Control System" and "Research on Lean Design Methods of WTGS Drive System" focus on the innovation and upgrading of wind power core technologies, aiming at promoting the progress and development of wind power technology in China and even in the world. At the same time, at the provincial and ministerial levels, we also embrace responsibility with passion to undertake "key technologies of deep-sea semi-direct drive WTGS above 15MW" and "major core technology research and complete machine industrialization projects of 3.xMW WTGS", focusing on overcoming cutting-edge technical problems in the field of wind power and promoting iterative upgrading and industrial application of technologies.

In the field of strategic cooperation, we have established a long-term strategic partnership with CR Power Technology Research Institute. Focusing on the core technology of the WTGS master control system, both parties jointly cope with technical challenges by combining CRRC Zhuzhou Institute's profound R&D strength and CR Power Technology Research Institute's rich practical experience. The cooperation covers the performance test, demonstration application and batch deployment of the master control system in extreme environments, as well as regular technical exchanges and achievement sharing, aiming to realize complementary advantages and deep integration of resources from both sides, improve the R&D system and stimulate more technological innovation. In addition, the Company has established long-term strategic cooperative relations with many domestic giants such as China Huadian Corporation, China Huaneng Group, China Datang Corporation and North United Power. In deep cooperation, it has established a good reputation in the industry by virtue of its pragmatic and enterprising spirit and strong R&D, manufacturing and service capabilities.

In 2024, the Wind Power Business Unit jointly held an achievement release conference on wind resource assessment of wind farms with high slope terrains with the Special Committee for Wind Energy, key customers, design institutes and universities. At the conference, we solemnly released the industry standard, the Methodology of Wind Resources Assessment for Wind Farms on Slope Terrain. The introduction of this standard aims to solve the problem of wind resources assessment in areas with mountainous terrains and high slope terrains in engineering practice and promote the technical progress and standardized development of the wind power industry.



CRRC Zhuzhou Institute Wind Power Business Unit continues to improve its capabilities and looks forward to working side by side with partners around the world to continuously promote the innovation and progress of wind power technology and inject inexhaustible impetus into the long-term development of the industry.

Associations we join

Association Name	Title
National Technical Committee on Wind Energy Generation Systems of Standardization Administration of China	Member
National Plateau Electrotechnical Products Environmental Technology Standardization Technical Committee	Member
Wind Power Mechanical Equipment Sub-committee of Technical Committee for Standardization of Wind Power in Energy Industry	Member
Wind Power Equipment Standardization Committee of China Electrical Equipment Industry Association	Member
Wind Energy Equipment Branch of China Association of Agricultural Machinery Manufacturers	Council Member
China National Resources Recycling Association	Member
Jiangsu Province Renewable Energy Industry Association	Member
Chinese Wind Energy Association	Member
China Electricity Council	Member

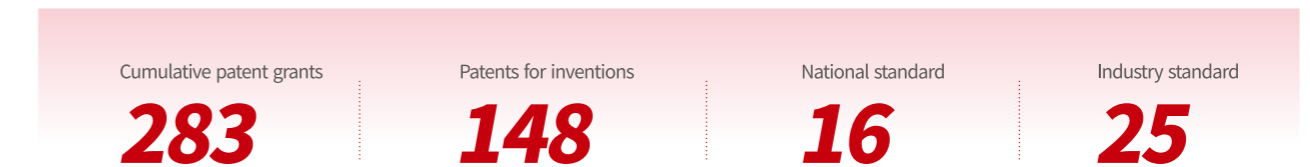
Intellectual Property and Standards

CRRC Zhuzhou Institute has always strictly followed the Patent Law of the People's Republic of China, Tort Liability Law of the People's Republic of China, Enterprise Intellectual Property Management and other national laws and regulations, and formulated a series of management systems and guidance documents such as Intellectual Property Management Measures to build a comprehensive intellectual property protection system. The Wind Power Business Unit actively responds to and strictly implements these systems, effectively prevents the loss of intellectual property rights as an intangible asset by strengthening internal publicity and education, and earnestly safeguards the Company's intellectual property rights.

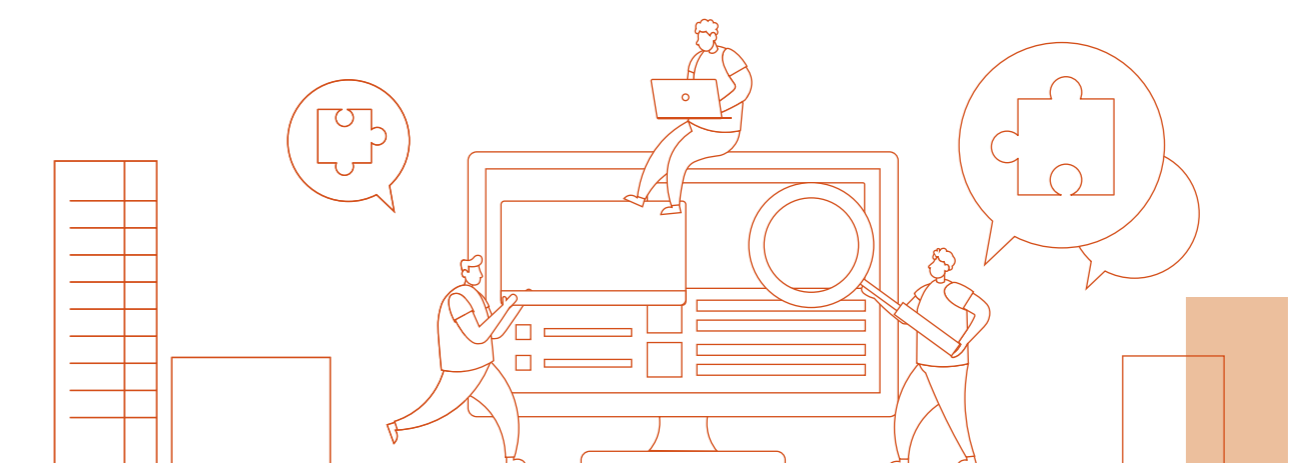
CRRC Zhuzhou Institute Wind Power Business Unit attaches great importance to the protection of intellectual property rights and drives the industry forward with innovation while devoting itself to promoting green technology progress. In the process of applying for intellectual property rights, we adhere to a rigorous attitude, strictly check the necessity and rationality of application, further standardize the Company's intellectual property management, and ensure that each intellectual property can contribute its due value to the development of the Company.

Up to now, we have obtained 283 patents in the field of wind power, including 148 invention patents, which is not only a strong proof of our profound technical foundation but also a vivid demonstration of continuous innovation vitality.

We have also actively engaged in the formulation and upgrading of industry standards and participated in and led the release of 16 national standards and 25 industry standards, which has effectively promoted the standardization process and technological innovation pace of the industry.



Description	Unit	2023	2024
Number of patent applications	Pcs.	18	8
Number of patents granted	Pcs.	33	31



Excellent Quality, Persistent Pursuit of Perfection

Lean Manufacturing and Standardized Management

CRRZ Zhuzhou Institute Wind Power Business Unit focuses on lean manufacturing and standardized production management, continuously optimizes the production process, improves manufacturing efficiency, and is committed to providing customers with high-quality products. We have established a systematic and standardized management system to ensure the traceability, controllability and sustainability of the production process and provide a solid guarantee for product quality.

Guided by customer value, we have improved our production organization system and adopted the Manufacturing Execution System (MES) to realize the whole process management, seamlessly linking up from order signing to product delivery. In terms of personnel qualification management, we have formulated the Management Rules for Skill Evaluation of Production Posts in the Manufacturing Center to improve the comprehensive quality of employees and ensure high-quality completion of tasks.

For incoming inspection and warehousing, we strictly follow the rules and regulations such as Material Technical Management Measures. All materials are strictly inspected and recorded, nonconforming products are handled in time, and the first material inspection is carried out for the key first material. In terms of key quality control, we identify and control the key working procedures and special processes of each platform product, control the whole process, and regularly verify the effectiveness.

In terms of process management, we have established sound control procedures for process development, review, verification and change. We pay attention to the R&D and application of new processes to promote energy conservation and consumption reduction. At the same time, process discipline inspection is carried out to ensure the order of the production site. In terms of process quality control, we have established relevant systems to stipulate the quality control processes and activity requirements, so as to ensure that the process quality is traceable and controllable.

Warehousing and logistics management is standardized and orderly, focusing on green and low-carbon operations to ensure the safe, accurate and efficient circulation of materials and products. In terms of equipment management, we have set up a special department to implement comprehensive management, ensure the stable operation of equipment, and promote green maintenance and energy-saving transformation.

In addition, we actively carry out clean production audits. The clean production level has reached an advanced level in China and successfully passed the national green factory evaluation. We continue to practice the concept of green development and promote the continuous development of the Company's green operation mode.



Quality Control System and Standard

Adhering to the core quality policy of "strict quality control, setting up a wind power benchmark, meeting customer needs and building CRRZ brand", we are unwaveringly promoting the all-staff quality culture concept of "focusing on customers and doing things right at one time". We have made every effort to promote the in-depth construction of quality culture and refined innovation of management, and have obtained ISO 9001:2015 Quality Management System Certification. We focus on creating wind power products with excellent quality, high efficiency and strong competitiveness, striving to set a quality benchmark in the field of wind power and lead the development of the industry to a new height.

Governance Structure

The Wind Power Business Unit has established a comprehensive and efficient quality management governance structure, set up a technical quality committee, which is headed by the leaders in charge of technology and quality. The Quality Management Department is set under the Quality Committee as the execution center. The Quality Management Department is subdivided into four major professional teams, each performing its own functions and cooperating with each other.



Supplier quality team

Responsible for the establishment of supplier quality management system, supplier audit, material FAI, manufacturing supervision and mass production approval, handling major quality problems and claims of suppliers and improving the quality of suppliers' materials

Quality control team of wind farm

Responsible for product operation quality monitoring, product operation data analysis and improvement, handling of major quality problems during the O&M period, reliability technology, quality tools, test verification system and technical support

Project quality team

Responsible for quality planning and process control of scientific research and order projects, and quality control of wind farm delivery

Process quality team

Responsible for quality informatization, quality management improvement (quality objectives, projects, culture and activities), system, process management and optimization and quality supervision

Quality Management System

In order to ensure that the overall main responsibility for product quality is effectively implemented, we have formulated clear and hierarchical quality management system documents.



Under the guidance of quality objectives, we have defined enterprise-level key indicators for customer-oriented quality performance, including quality loss amount, mean time between failures (MTBF), WTG time-based availability (TBA), mean time to repair (MTTR), failure frequency in three months after 240-hour trial operation assessment, one-time pass rate of 240-hour trial operation assessment of order projects, and closed-loop timely rate of quality problems.

At the same time, we break down the company-level quality objectives into various departments and processes to build a comprehensive and detailed quality performance appraisal system. This system not only focuses on quality economic indicators but also deeply investigates multiple dimensions such as quality problem indicators, product operation indicators, process quality indicators and customer satisfaction indicators to ensure that each link can meet high standards and strict requirements.

In the process of quality management system construction, we always adhere to the principle of "Three Adherences". We adhere to carrying out training on quality knowledge, concepts and methods to guide all employees to realize the comprehensive transformation of concepts, knowledge and abilities from quality inspection to quality control and then to quality prevention. We adhere to the core concept of "doing things right at one time", carry out quality prevention work in depth, set up quality red lines, strictly implement "quality bans", promote advanced concepts and methods, and pay attention to experience accumulation of quality cases. We adhere to carrying out the special research or special work of "continuously improving product quality", fully implementing QC improvement for all employees, continuously analyzing and improving key data of product operation, and promoting the steady improvement of product operation quality indicators. Among them, the Tornado QC Team and Engine Room Team of the Wind Power Business Unit won the titles of National Excellent Quality Management Team and National Quality Trustworthy Team.

◆ Management of Non-conforming Products

The Wind Power Business Unit attaches great importance to the management of product quality nonconformity and has formulated the Non-conformance Control Procedure of the Wind Power Business Unit, Measures for Quality Problem Management of the Wind Power Business Unit, etc. We have clarified the functional responsibilities, processes and activity requirements for material warehousing, production process, commissioning process and handling of various nonconformities in wind farms to ensure that each link has rules to follow. For nonconformities, we implement hierarchical management. Level 5 problems are immediately dealt with in an emergency manner. Level 1-4 problems are subject to closed-loop management of emergency response and cause analysis, and the 8D method is adopted to ensure that the problem is fundamentally solved.

In the whole process of procurement, production and commissioning, all nonconformities need to be entered into the TQM system for closed-loop tracking management. We have adopted a variety of flexible treatment methods including concession acceptance, rework and repair, scrapping and returning goods. For Level 1-4 problems, we will analyze the causes in depth and issue a detailed analysis report for continuous improvement.

For nonconformity events on the customer's site, we will quickly issue a troubleshooting work order to deal with them, and other problems will also be entered into the TQM system for tracking management. At the same time, we carry out quality monitoring on the whole life cycle of WTGS and ensure the stable operation of WTGS in all aspects from new grid-connected status to normalized O&M.

For major risk issues, we have established a package guarantee mechanism and set up special sub-working teams to form special plans for promotion. Through regular meetings on quality problems, an assessment and supervision mechanism is established to ensure that the problems are solved in a timely and effective manner and continuously improve product quality.

In addition, we have formulated the Management Measures for Emergency Response to Product Quality Accidents of Wind Power Business Unit, established a working mechanism for handling product quality accidents, standardized the efficient reporting, investigation and handling of accidents, and minimized property and economic losses and the impact of public opinion.

CASE Handling of Nonconforming Products with High Quality and Efficiency

During the manufacturing stage of PowerChina's 400MW wind power project in Urad Middle Banner Large Base, Inner Mongolia Autonomous Region, it was found that there was an error in the assembly hole spacing size for the front machine. After the problem was found, the Company quickly took emergency measures, including notifying suppliers to check inventory, assessing suppliers, dismantling installed materials and returning goods, supplementing bolts, etc. All measures were completed within the specified time. At the same time, we organized suppliers to analyze problems and formulate corrective measures, and required them to provide 8D reports. The handling of nonconforming products reflects the Company's high attention and strict management of product quality, which ensures that product quality problems are solved in a timely and effective manner to prevent similar problems from happening again.

◆ Measures and Results

In the process of implementing the quality management system, the Wind Power Business Unit has also taken a series of measures.

- Sign quality objective responsibility statement: sign annual quality objective responsibility statement with the business center, and implement monthly benchmarking evaluation according to objective management requirements to ensure the realization of quality objectives.
- Carry out quality audit, supervision and daily evaluation: carry out daily quality audit (internal audit, external audit and process audit) and quality supervision (product and service realization processes), so as to improve the quality management level. At the same time, implement daily quality performance evaluation, which includes positive/negative incentives for quality and employee quality score system. The assessment details and score statistics are recorded in the TQM system of the quality information management platform.
- Promote quality improvement activities: actively carry out quality improvement activities (quality improvement projects, QC, quality trustworthy team, quality cases, micro-innovation cases and quality improvement) to create a continuously improved quality culture. In the past three years, QC activities and quality trustworthy teams have won many good results in national and provincial selections, won the title of "Excellent Enterprise in Quality Management Team Activities of Hunan Province", and won the first prize in CRRC's micro-innovation topics for three consecutive years.

In 2024, the Wind Power Business Unit's products have excellent health and safety performance without any withdrawal or recall, and the product quality has been excellent without any negative events.

CASE WTGS Reliability Reaches New Highs, Multiple Regions Awarded Industry Bests in 2024

In 2024, the Wind Power Business Unit has achieved remarkable results around the core goal of "ensuring delivery and controlling risks, hardening the core and strengthening prevention".

The WTG time-based availability (TBA) of 2.5MW units is as high as 99.78%, the TBA of 3.xMW units also reaches 99.47%, and the TBA of 4.XMW and above units even reaches 99.31%, which continuously and effectively guarantees the power generation of customers and demonstrates our excellent ability in technical optimization and O&M management.

In the benchmarking evaluation of China Electricity Council, projects in 8 regions such as Inner Mongolia and Jilin won the title of "Original Equipment Manufacturers with the Best Unit Availability", ranking top two. This marks that our unit reliability has once again been widely recognized by industry authorities, demonstrating our leading position and strength in the wind power industry.

CASE Multiple Measures are Taken Simultaneously to Significantly Improve the Quality of the Hybrid Tower

In order to improve the quality control ability of the hybrid tower, we have implemented a series of key measures. We have formulated rigorous supplier audit standards, and comprehensively evaluated and optimized our partners to ensure the quality at the source. At the same time, a comprehensive hybrid tower manufacturing and hoisting process document has been prepared to clarify the quality requirements of each link, standardize the production process and improve manufacturing accuracy. In addition, we have also strengthened the evaluation of supervision engineers' professional ability, improved their quality through training and assessment, and strictly controlled to ensure quality. These efforts have jointly established a complete whole-process management and control system for hybrid towers, which has significantly improved the quality of hybrid towers in ongoing projects.



CASE Technical Cost Reduction and Quality Control are Continuously Promoted, and Standardization Contributes to Efficient Development

In 2024, we have issued the Control Procedure for Technology Development, which not only standardizes the development process of new technologies but also skillfully integrates DFMEA tools to effectively improve the reliability and safety of technology development.

At the same time, we have established a perfect quality control mechanism for design cost reduction items and carried out comprehensive standardized management of technical reviews. By optimizing the workflow, the standardization of review data is realized, which greatly improves the efficiency and accuracy of the review.

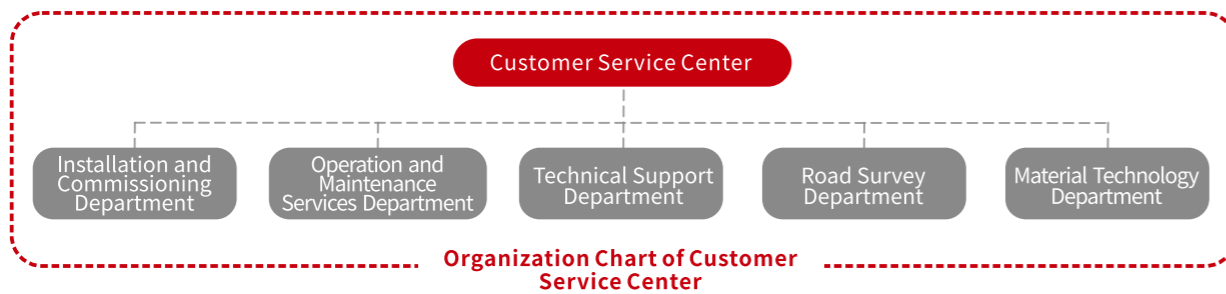
In addition, we have also innovatively formulated a series of standardized work templates supporting design cost reduction items, such as Quality Control Tracking Form, New Technology Verification Plan and Review and Access Checklist for Design Cost Reduction Scheme. The application of these templates has greatly improved the work efficiency and ensured the smooth progress of design cost reduction.

Customer Service and Rights Protection

Adhering to the core value of "customer first", we put the service and protection of customers' rights and interests in the first place, and are committed to providing all-round, safe and reliable services that exceed expectations. We understand the importance of customer trust, so we not only strive for product excellence but also focus on customer experience. From pre-sales to after-sales, we have established a sound service system to ensure timely and professional response to customer needs. At the same time, we strictly abide by the law and make every effort to protect customer privacy and data security, so that customers can rest assured.

◆ Organizational Structure

The Wind Power Business Unit has specially set up a first-level business center-Customer Service Center. As our core window to serve customers, it always adheres to the service concept of "market-oriented and customer-centered" and is committed to becoming an industry leader in full life cycle services for large wind and photovoltaic power generation equipment. Relying on strong equipment technical strength and system integration capability, we provide all-round wind power life cycle services covering product transportation, engineering construction (EPC), warranty period service, aftermarket service and digital and intelligent energy service. The Customer Service Center consists of five departments: Installation and Commissioning Department, Operation and Maintenance Services Department, Technical Support Department, Road Survey Department and Material Technology Department, which are jointly committed to providing customers with excellent service experience.



The Customer Service Center has established a comprehensive and perfect whole-process control system document system for road survey, equipment shipment, wind turbine hoisting, operation and maintenance, training management, equipment and material management and safety management, including important documents such as the Service Manual of the Customer Service Center. We uphold and practice the concept of "Four Zeros" service quality, and are committed to providing excellent service experience.

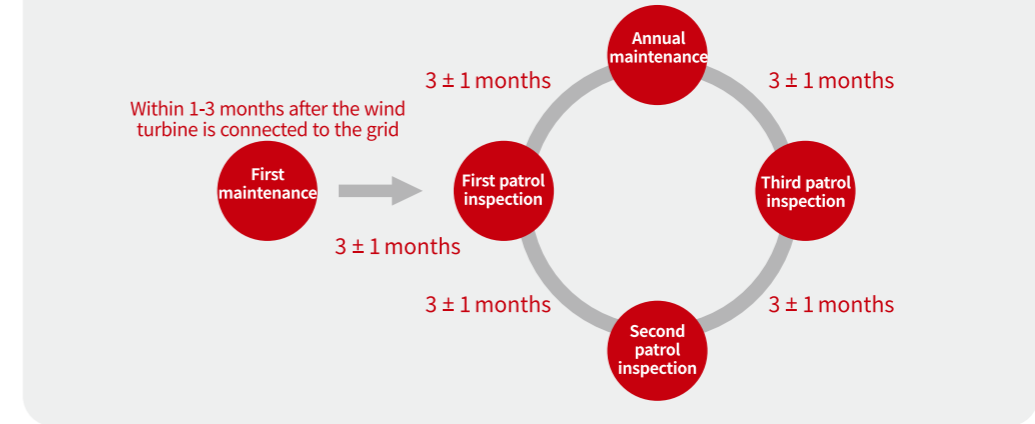
Zero distance	Customer-oriented, personalized service; teamwork, simplicity and honesty
Zero tolerance	Zero tolerance for safety violations, zero tolerance for disciplinary and legal violations, and zero tolerance for major risks
Zero failures	Unmanned, high-quality and efficient
Zero backlog	Responsibility, rapidity, and productivity; daily task completion with daily clearing and settlement

◆ Service Upgrade

The Wind Power Business Unit provides customers with comprehensive and efficient after-sales service measures. We set up fixed service stations in wind farms, equipped with professional service personnel, tools, equipment and spare parts. We adhere to the operation and maintenance concept of "maintenance and prevention first, overhaul and defect elimination supplemented", and implement the regular inspection and patrol system to ensure the stable operation of units. According to the characteristics of the project, a customized O&M strategy based on "one scheme for one machine" is provided to improve O&M efficiency and reduce O&M costs.

In terms of troubleshooting, we provide efficient and standardized routine troubleshooting services to quickly respond and restore the operation of units. At the same time, we provide mature, reliable and traceable technical support services to ensure that problems can be solved in a timely manner. We also provide preventive diagnosis and replacement services for large components, regularly analyze monitoring data, timely feed back and guide the treatment of early failures. When large components are damaged, we respond quickly and provide professional replacement services. In addition, we submit the Customer Service Report to customers every month, including operation data statistics, fault analysis and other contents, so as to continuously improve service quality and equipment reliability.

Schematic Diagram of Periodic Patrol Inspection Cycle



In the field of after-sales service, we attach great importance to team building and professional skills training. Through a series of well-organized training for after-sales service engineers, we have successfully cultivated a group of skilled service backbones and technical experts, built a wind farm service team in 1+X mode, and created a talent pool that meets the needs of customer service sites. In 2024, we have received 3 complaints about products and services, all of which have been handled in a 100% closed-loop manner.

In order to promote the overall improvement of customer service level, we have taken a number of effective measures in 2024. For the project during the construction period, we have carried out training on receiving, unloading and handover of wind farms and analysis of 240-hour trial operation assessment, which has effectively improved the timeliness rate of equipment handover and the passing rate of trial operation assessment. At the same time, we have formulated a work plan for the expiration of the warranty period for the wind farm in 2024 to ensure that the WTGS equipment will exit the warranty period on time and avoid customer disputes.

During the reporting period, we have received many letters of praise and thanks from customers, which fully proves that our service quality and efforts have been widely recognized by customers.

◆ Customer Satisfaction

In 2024, the Customer Satisfaction Survey of the Wind Power Business Unit aimed to evaluate the conformity of product and service quality with customer requirements, and identify improvement opportunities to enhance customer satisfaction and loyalty. The survey covers the projects in hoisting commissioning period and operation & maintenance period of the Unit, involving 111 wind farms in total. Totally 451 questionnaires were distributed and recovered, with an effective recovery rate of 100%. In addition, the commercial parts of 18 owners were also investigated. According to statistical analysis, the overall customer satisfaction score is 95.68, which is slightly higher than that in 2023, indicating that it tends to be stable as a whole in recent years.

In addition, CRRZ Zhuzhou Institute Wind Power Business Unit attaches great importance to customer information and privacy security, and takes effective measures to ensure that the vital interests of customers are not damaged. For specific protection measures, please refer to the section "1.2.3 Information Security" for details. During the reporting period, the Wind Power Business Unit strictly guarded the line of defense for information security. There were no complaints caused by customer information disclosure, and the record of information security accidents was kept at zero.



Description	Unit	2023	2024
Number of regulatory complaints due to customer privacy issues	Time(s)	0	0
Complaint handling rate	%	100	100
Customer satisfaction	%	95.48	95.68



Digital and Intelligent Production Positive Transformation

The Wind Power Business Unit continuously improves the automation and intelligence level of production lines, aiming at reducing labor intensity, eliminating potential safety hazards and improving product quality and production efficiency. At the same time, we also pay attention to knowledge accumulation and reuse, which provides abundant extension means for future process design and management optimization.

In terms of structured process design and collaboration platform (CAPP), we continuously respond to users' suggestions for improvement and upgrade the system accordingly. The new system can quickly generate new project processes, shorten the production preparation time by more than 30%, realize the collaborative design of process and quality, and improve data consistency. At the same time, the change process drives changes to the changed data, effectively avoiding inconsistencies. The CAPP system provides homogeneous, high-quality and structured core data for the digital factory, builds a process standard knowledge base, and provides systematic support for knowledge accumulation and reuse.

We have independently reconstructed the MES system, comprehensively optimizing it to address the deficiencies of its original functions. The new MES system has been tested by key users and put into operation in early August 2024. It not only retains the original functions, but also meets the new needs of digital factories in terms of order-driven management, manufacturing visualization and transparency. The reconstructed MES system is more in line with the manufacturing management practice and provides strong support for digital and green production.



We have comprehensively upgraded the automatic yaw production line. In view of the bottleneck problem in the assembly process, we have introduced automated bolt fastening equipment and automatic front frame turnover and transfer equipment to realize the process layout of pipeline mode. Through reasonable planning of stations, processes and production tasks, we have not only met the capacity requirements but also achieved the goals of lowering labor intensity, reducing manpower and eliminating potential safety hazards in operation. The application of automation equipment eliminates the risk of bolt breakage and sling wear and fracture, while improving product quality and ensuring accuracy and reliability in the fastening process through pre-determined 100% coverage program settings and real-time monitoring of torque force. The fastening process data is also connected to the Manufacturing Execution System (MES), realizing whole-process data tracing.

Through this series of measures, the Wind Power Business Unit has not only upgraded and optimized its production lines in an all-round way, but also built an efficient and intelligent digital production system. Relying on continuously innovative technologies and optimized management, we will meet the market demand more accurately and provide customers with more excellent products and services. At the same time, under the guidance of the Company's unified strategy, we will continue to take new steps on the road of digital and green production.



Full-chain Collaboration and Lean Operation

The Wind Power Business Unit is committed to full-chain collaboration and lean operation. In every link of supply chain management and evaluation, it strictly follows the Company's rules and regulations and management methods, and deeply roots in the concept of green and sustainable development. We have established a comprehensive and rigorous supplier management system, which not only ensures high standards and strict requirements in the selection and evaluation process of suppliers, but also takes this opportunity to lead the entire supply chain to move towards green transformation.

Supplier Lifecycle Management

In terms of supplier management, the Company has established a systematic and high-standard selection and evaluation system. On this basis, we have formulated internal documents such as Measures for Supplier Management of Wind Power Business Unit, Guidelines for Evaluation Management of Suppliers of Wind Power Business Unit and Measures for Performance Management of Suppliers to ensure that the selection of suppliers not only meets business needs but also has long-term cooperation potential.

In order to widely obtain high-quality supplier resources, we have adopted a multi-channel development method. We can get in touch with more potential suppliers through various ways such as public procurement, information sharing, internal recommendation, product sourcing, industry associations and professional institutions. In doing so, we pay special attention to companies in the industry that are known for their green supply and sustainability by prioritizing their inclusion in our supplier list.

During the development of suppliers, we have implemented a series of rigorous audit procedures. From qualification audits, on-site inspection or interview to technical disclosure/scheme review and sample review, every link strives to be comprehensive and meticulous. Especially for suppliers of key large components, we emphasize the importance of on-site review and sample review to ensure that they have sufficient strength in environmental protection and sustainable development.

Before formal cooperation, suppliers shall sign the Supply Quality Assurance Agreement and the Supplier Code of Conduct, which specify the basic requirements such as compliance with environmental protection laws and regulations, protection of employees' rights and interests, prohibition of forced labor and employment of child labor, integrity and self-discipline, as well as the practice of the principles of environmental protection and sustainable development in business.

In terms of supplier evaluation, the Wind Power Business Unit shall conduct supplier evaluation for authorized procurement business scope at least once a year. Suppliers of strategic, leveraged and bottleneck production materials are also subject to rigorous quarterly evaluation, covering multiple dimensions such as quality, cost, delivery, collaboration, management and technology. At the same time, we encourage all departments (centers) of Wind Power Business Unit to flexibly and independently formulate more practical evaluation dimensions and scoring criteria with reference to Supplier Evaluation Dimensions and Scoring Criteria and in combination with their own authorized procurement business characteristics.

In order to maintain the healthy development of the supply chain, we have established a strict supplier misconduct management system. We identify and dispose of the supplier's misconduct, and carry out hierarchical management according to Identification Standard for Supplier's Misconduct (General). Suppliers with serious misconduct will be included in the "blacklist" and disqualified from cooperation to ensure the purity and stability of the supply chain.

Up to now, the Wind Power Business Unit has gathered more than 300 suppliers, with its network widely covering 26 provinces and municipalities directly under the central government in China. Among them, we attach great importance to and support the development of local suppliers. The number of suppliers in Hunan ranks top among many provinces.

Description	Unit	2023	2024
Total number of suppliers	No.	332	343
Number of new suppliers evaluated in terms of environment, labor and ethics during the reporting period	No.	60	67
Proportion of suppliers that have signed anti-corruption agreements	%	100	100

CASE

The in-depth Management and Control of APQP4wind Have Achieved Remarkable Results, Further Upgrading Supply Chain Quality Management

Based on the in-depth supplier quality management strategy of APQP4wind, we have comprehensively promoted the application and practice of APQP4wind at the supply chain end.

In 2024, we have successfully conducted professional training on APQP4wind for 26 suppliers, and thoroughly completed the full-process evaluation of APQP4wind for two suppliers and subsequent secondary review.

In terms of material quality control, we have completed a total of 237 first article inspections (FAI), identifying 1,122 issues in total. Among them, 631 issues have been handled in a closed-loop manner, and the rest are also being actively promoted towards closure.

In addition, we also organized 8 supplier handover activities and conducted 33 supplier assessments to ensure the continuous improvement of supply chain quality.

Optimization and Collaboration of Supply Chain

On the basis of supplier management, we pay more attention to the overall optimization and collaboration of the supply chain and are committed to achieving efficient operation and win-win development of the supply chain.

◆ Promotion of Construction of Green Factories for Suppliers

The Wind Power Business Unit has actively responded to the national "3060" dual-carbon strategy and formulated a plan to cultivate green factories among suppliers, aiming at promoting suppliers to establish green factories, promoting the green transformation of supply chains, reducing carbon emissions, improving resource utilization efficiency and building a green, low-carbon and circular development model.

Through data collection and preliminary evaluation, we have determined the list of cultivation objects for key suppliers. Subsequently, through in-depth communication and investigation, we tailored a green factory cultivation plan for each supplier. During the implementation process, we conducted regular supervision and inspection, provided necessary technical consultation and training support, and assisted suppliers in mastering green production technologies and management methods. At the same time, we regularly organized technical exchange meetings and training activities to comprehensively improve the overall level of suppliers. At present, a number of suppliers have successfully met the green factory standards and made remarkable progress in energy conservation and emission reduction, resource recycling, environmental management system and other aspects. They have not only improved the level of supply chain greening, but also achieved win-win economic and social benefits, setting a benchmark for the whole industry.

◆ Supplier Cultivation and Cooperation

We have established a supplier cultivation mechanism based on the principle of win-win cooperation, and selected potential key suppliers for focused cultivation according to the weak links and development opportunities in the supply chain. Through various ways such as coaching and training, dispatching experts and special cultivation, we help suppliers enhance their capabilities, improve weak links and jointly improve the service quality and level of the supply chain.

In order to shorten the product R&D cycle, optimize design schemes, improve product quality and reduce costs, we encourage suppliers to participate in early stages and carry out deep cooperation such as joint marketing, joint design, production coordination and cost optimization in a collaborative manner. This market-oriented cooperation model has effectively improved the response speed and competitiveness of the supply chain.

We actively promote the information construction of supplier management, and organized suppliers to participate in the online system training of "CRRC Go" in November 2024 to improve the efficiency and accuracy of e-procurement business. Through the interconnection of information platforms, the collaborative management of logistics, information flow, capital flow and business flow is realized, which further improves the efficiency and benefit of the supply chain.

◆ Promotion of Green Supply Chain Management

In 2024, we prioritized the establishment of "Green Supply Chain Management Enterprise", further emphasizing green elements to accelerate the development of a green manufacturing system and actively advance the green and low-carbon transformation and upgrading of the Unit. Guided by resource conservation and environmental friendliness, we thoroughly integrated green practices across procurement, production, marketing, recycling, logistics and other businesses. We encouraged collaboration with upstream and downstream enterprises to jointly enhance resource utilization efficiency, improve environmental performance, and achieve the goals of efficient resource utilization, minimal environmental impact, and greening of enterprises in the supply chain. We actively pursued the application for recognition as a national-level green supply chain management enterprise.

We continuously promote the green transformation and sustainable development of the entire supply chain through strict supplier selection and evaluation, multi-channel resource development, rigorous audit procedures, comprehensive management and assessment, and active green supply chain management practices.



CASE

2024 Wind Power Supply Chain Conference Themed on "Steady Progress and Joint Efforts"

On December 4, 2024, CRRC Zhuzhou Institute and Xingtai City jointly held a supply chain conference with the theme of "Steady Progress and Joint Efforts". This conference brought together more than 100 well-known partners from the upstream and downstream of the wind power industry chain to discuss new directions for industrial development.

With the in-depth implementation of the "dual carbon" strategy, the wind power industry has ushered in a rapid development period. CRRC Zhuzhou Institute took this opportunity to conduct in-depth exchanges with its supplier enterprises in terms of technological innovation, safety and reliability, cost control, service guarantee and resource intensive use. At the conference, CRRC Zhuzhou Institute and Xingtai Economic Development Area signed strategic cooperation agreements with 9 enterprises related to the wind power industry chain, providing strong support for Xingtai to build a hundred-billion-level new energy equipment manufacturing industrial cluster.

At the opening ceremony, CRRC Zhuzhou Institute signed a number of framework agreements with partners and local enterprises in Xingtai, further consolidating the supply chain cooperation relationship. At the same time, the Company awarded its excellent partners in the wind power sector the Joint Efforts Award, Outstanding Contribution Award and Best Individual Collaboration Award respectively.



CASE

Zhuzhou Onshore Wind Power Equipment Industrial Cluster: CRRC Zhuzhou Institute Wind Power Business Unit Has Become the Core Force

Relying on the advantages of CRRC's whole industrial chain, Zhuzhou has successfully built an onshore wind power equipment industry cluster with a complete industrial chain ranging from IGBT to complete WTG. CRRC Zhuzhou Institute Wind Power Business Unit focuses on the development and sales of complete machines, which has become a key support for the industrial chain.

This cluster has 11 national and 26 provincial technological innovation carriers, and more than 300 experts have been introduced. The industry-university-research cooperation has been continuously deepened, with over 300 cooperation agreements signed, effectively promoting the transformation and application of technological innovation achievements. At the same time, the development direction of advanced manufacturing industry in this cluster has continuously deepened mechanism reform and significantly improved service efficiency. At present, the local matching rate of complete wind turbines exceeds 75%, benefiting 133 enterprises and providing 13,500 jobs. The coordinated development of industry, technology and quality has achieved remarkable results.



People-oriented

Riding the Wind to Build Dreams Together

As an important part of CRRC Zhuzhou Institute, the Wind Power Business Unit has always adhered to the Company's employment philosophy and attached great importance to equal employment and talent development. We know that employees are the most valuable treasure of an enterprise. Therefore, on the basis of abiding by the employment rules of CRRC Zhuzhou Institute, we are committed to creating a fair, just and open employment environment and providing equal development opportunities for every employee. At the same time, we pay deep attention to the health of employees, unswervingly safeguard their legitimate rights and interests, and ensure that every employee can work and live happily in the big family of Wind Power Business Unit.

Core issues

R&D and innovation Intellectual property protection
Product quality and safety Quality service Supply chain management

Contributions to SDGs

3 GOOD HEALTH AND WELL-BEING 	5 GENDER EQUALITY 	8 DECENT WORK AND ECONOMIC GROWTH 	
1 NO POVERTY 	2 ZERO HUNGER 	4 QUALITY EDUCATION 	10 REDUCED INEQUALITIES



Fair Employment, Diversity and Integration

CRRC Zhuzhou Institute firmly supports the International Labour Organization's (ILO) standards and actively practices international norms on human rights as well as national laws and regulations. The Wind Power Business Unit strictly abides by the regulations, deeply understands the connotation of human rights, and respects and embraces cultural diversity. We explicitly require our suppliers and partners to follow the principle of equal employment, jointly create a fair and just employment environment, and work together to build harmonious labor relations.

The Company strictly abides by the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China and other relevant laws and regulations, and formulates the Management Measures for Employee Recruitment of CRRC Zhuzhou Institute. Upholding the principle of fair and diversified employment, we standardize recruitment management to ensure an orderly process. With the exception of special posts, we generally implement open recruitment, adhering to demand orientation, professional alignment, openness and fairness, and mutual selection. The Wind Power Business Unit firmly opposes any form of discrimination and ensures that all employees and candidates enjoy equal job opportunities without restrictions such as gender, age, race, nationality and religious belief. During the reporting period, there were no incidents of discrimination, fraud and harassment. In the past three years, we have maintained a record of zero strike/lockout, successfully creating a harmonious, stable and vibrant employment environment.

The Wind Power Business Unit has rigorous recruitment discipline, strictly implements national and company policies in the recruitment work, follows established plans and procedures, and strictly regulates the behavior of recruiters. Falsification and malpractice are strictly prohibited. Violators will be investigated, and relevant leaders and key personnel will bear corresponding responsibilities. A nepotism avoidance policy is implemented to ensure the fairness of the recruitment process. At the same time, we consciously accept the supervision of the Group Company and CRRC Zhuzhou Institute to strengthen self-discipline. In terms of public opinion management, the recruiters are required to accurately publicize and implement the policies of the Company's Human Resources Center with rigorous words and eliminate false commitments, so as to maintain the good image of the Company and ensure that the recruitment work is serious, fair and transparent.

The Wind Power Business Unit takes a strict stand and resolutely prohibits any department or partner from engaging in illegal activities involving the employment of child labor or forced labor. According to the Management Measures for Employee Recruitment of CRRC Zhuzhou Institute, we clearly stipulate that employees must be at least 18 years old. During the reporting period, there was no child labor or forced labor in the Wind Power Business Unit, and the bottom line of legal and compliant employment was adhered to.

The Wind Power Business Unit has deeply implemented the "Nest Building Project", exploring and innovating diversified channels for talent introduction to provide solid talent strategic support for the development of the business. We fully encourage employees to make use of the internal recruitment mechanism, and independently choose more suitable positions according to their personal interests and professional expertise, so as to effectively stimulate their inner working potential. During the reporting period, the Wind Power Business Unit introduced 150 talents, further optimized the staff structure, promoted the optimal allocation of human resources and reserved abundant high-quality human resources for the Company. At the same time, we also actively introduce high-end talents in the industry to continuously improve the overall strength and competitiveness of the team.



Description		Unit	2023	2024	
Employee rights and interests	Proportion of labor contract signing	%	100	100	
	Coverage rate of social insurance	%	100	100	
	Paid annual leave days	Day	7095	9445	
Employment of employees	Total number of employees	Person(s)	1419	1889	
	Increase/decrease of number of employees over the previous year	Person(s)	266	470	
	By gender	Male	Person(s)	1263	1722
		Proportion of men	%	89.01	91.16
		Female	Person(s)	156	167
		Proportion of women	%	10.99	8.84
	By employment type	Number of employees under the labor contract system	Person(s)	733	811
		Proportion of employees under the labor contract system	%	51.66	43.20
		Number of persons under the labor dispatch system	Person(s)	686	1078
	By age	Proportion of persons under the labor dispatch system	%	48.34	56.80
		31 and above	Person(s)	783	832
		30 and below	Person(s)	636	1057
	By educational background	Number of people with bachelor degree or above	Person(s)	734	854
		Junior college or below	Person(s)	685	1035
By category of employees	Number of non-management employees	Person(s)	1319	1788	
	Total number of management employees	Person(s)	91	84	
Employee turnover rate	Number of ethnic minority employees	Person(s)	61	95	
	Proportion of ethnic minority employees	%	4.30	5.03	
	Employee satisfaction	%	100	100	
Employee turnover rate	Total number of resigned employees	Person(s)	237	361	
	Employee churn	%	16.70	19.11	

Career Development, Multi-dimensional Assistance

Diversified Career Development System

CRRC Zhuzhou Institute has established a clear and diversified promotion system, laying a fair and just career development path for all employees. The Company has formulated a series of rules and regulations such as the Management Measures for Career Development Channels and Levels, and established a dual-channel promotion mechanism with parallel management channels and professional channels.

According to different professional sequences such as business management, professional management, engineering technology, marketing and skilled craftsman, we subdivide the career development level into 7 levels, which are closely related to employees' welfare benefits. At the same time, for professional fields such as engineering technology, marketing, supply chain management, professional management and skilled craftsmen, we have established a 9-level job grade system ranging from P1 to P9, from engineers to scientists, based on the scope of job responsibilities and the difficulty of work. The job grade is directly related to employees' salary and benefits.

The Wind Power Business Unit strictly follows the Company's rules and regulations, and regularly organizes hierarchical appraisal and employment every year to ensure that employees can achieve promotion of career development level according to their own performance. In addition, we also provide our employees with valuable opportunities for promotion or job change through job competitions. At the same time, the Company actively encourages employees to voluntarily apply for job transfer or participate in internal recruitment according to their own interests and development plans, so as to fully stimulate the potential and creativity of employees and promote the sustainable development and prosperity of the Company.

Talent Cultivation and Experience Inheritance

Knowing that talents are the core driving force for enterprise development, the Wind Power Business Unit has continuously improved its talent training structure and meticulously constructed a set of "Wind" series talent training programs covering all aspects. From senior leaders to junior employees, from potential emerging talents to newcomers just starting their careers, everyone is included, ensuring that every employee can grow and improve throughout his or her career.

For senior managers, the Wind Power Business Unit has specially launched the "Wind Soul" program, which focuses on the training of leadership and strategic insight to help them become the navigators leading the business forward. Middle-level managers strengthen their management and teamwork abilities through the "Wind Wisdom" plan, thus consolidating their position as the mainstay of the organization. The "Wind Wings" program provides valuable practical experience and management skills training for grass-roots managers, helping them to soar to new heights. The "Wind Feather" program focuses on identifying and cultivating high-potential talents, and tailoring their growth paths and career plans. For new employees, the "Wind Youth" program helps them quickly integrate into the team and open a new chapter of their career through systematic onboarding training and mentor guidance.

While building and improving the talent training system, the Wind Power Business Unit also attaches great importance to the refining of organizational experience and the improvement of professional ability. Relying on the mature training course management system of CRRC Zhuzhou Institute - Golden Case Competition, the Unit has carefully designed training courses covering five modules: organizational reform, digital transformation, problem solving, working methods and teaching cases. These courses not only include complete project IPD practical teaching cases, efficient working methods and skills, but also incorporate the practical teaching on marketing work, covering all working scenarios. By regularly extracting and sharing excellent organizational experience, the Unit continuously injects new vitality into the team, driving the continuous enhancement of their professional abilities.

In order to effectively inherit the valuable experience accumulated by the enterprise, the Unit also regularly holds internal trainer competitions relying on the internal trainer training system of CRRC Zhuzhou Institute. After strict selection and careful training, the Unit has set up a strong team composed of more than 40 certified internal trainers. They not only shoulder the important task of imparting professional knowledge and skills, but also undertake the mission of inheriting corporate culture, laying a solid foundation for the sustainable and steady development of the Unit.

CASE || Centralized Training Helps R&D Innovation, Cost Reduction and Efficiency Improvement

In order to further enhance the R&D and innovation capability of the Wind Power Business Unit and effectively reduce operating costs, the Unit specially invited external experts to hold a three-day centralized training activity from January 28 to 30, 2024. This training attracted the active participation of 105 key personnel from departments such as technology, centralized procurement, process and quality. Through this training, the cost consciousness of the R&D team has been greatly improved, the existing workflow has been optimized, and a solid foundation has been laid for the Unit to achieve the goal of reducing costs and increasing efficiency.



CASE || Innovative Implementation of Marketing Empowerment Training Helps the Unit Improve Its Market Competitiveness

In order to help the marketing section of the Unit develop strongly, we have conducted multiple rounds of in-depth research among the regional marketing commanders and front-line business backbone personnel, carefully exploring the business needs and identifying the pain points. From September 18 to 20, 2024, we organized special training on marketing empowerment covering key areas such as market analysis, marketing strategy and customer management, with a total of 59 marketing backbones participating.

This training was boldly innovative, moving away from purely theoretical and tedious learning methods, and instead focusing on scenario-based and case-based teaching. We have skillfully integrated the high-frequency and key scenes in the complete marketing process into practical models such as C139 model, nine-square grid of competitive strategy and pain chain, facilitating tool-based learning. Through this innovative way, we have successfully established standardized actions for the marketing process, effectively enhancing the professional ability of marketing personnel in the Unit, and providing a solid and powerful guarantee for the market competitiveness of the enterprise.



CASE Training for Mentor Ability Improvement Kicks off, Opening A New Chapter of Talent Cultivation in the Unit

As the core magic weapon for Wind Power Business Unit to build a learning organization, the mentor system has always been highly valued. In order to promote the rapid growth of new employees and continuously improve the teaching ability of mentors, we specially invited industry experts to organize and carry out special training on mentor coaching and apprenticeship questioning ability improvement before the induction of new employees. This training covered all 53 members of the 2024 mentoring group of the Unit.

The training content delved deeply into core aspects such as mentor's role recognition and coaching skills. Starting with techniques for switching coaching style and extending to the formulation of specific coaching tasks, the entire training process was infused with a comprehensive mentor-apprentice strategy that emphasizes "telling them, showing them, letting them tell me, and having them show me." Through this series of systematic training, the ability of the mentor team has been significantly improved, which provides strong support for the talent cultivation work of the Unit.



CASE Cultivation of High-potential Talents in "Wind Feather" - Diversified Training Forges A Practical and Competent "Wind" Team

In order to solve the challenge of a large number and slow growth of young employees, this training program carries out in-depth research and scientific evaluation to comprehensively understand the quality and ability of young talents. According to the business development and actual job requirements of the Wind Power Business Unit, the program team accurately outlined a "talent profile" and planned a clear growth path for young employees.

In terms of training mode, the program breaks the routine and adopts a strict mechanism of "selection before cultivation, and elimination while cultivating", and ingeniously integrates the dual mode of "action learning + practical posts". The program was officially launched on September 6, 2024, and 45 outstanding talents were carefully selected from young people under 35 years old. The training goes through three stages, focusing on the overall improvement of internal drive, professionalism and synergy. Through diversified methods such as on-site teaching, situational simulation, competitive drills and practical simulation, learning is made interesting and efficient.

After a series of training and practical challenges, the Unit has successfully cultivated a group of practical young talents who not only "know what to do" but also "know how to do it", injecting strong impetus into the future development of the Wind Power Business Unit.



Occupational Health, Safety Protection



We put the development of health culture in an important position and attach great importance to the occupational health management of employees. Adhering to the core concept of "happy life, health first", we adhere to the occupational disease prevention and control policy of "prevention first, combination of prevention and treatment" and strictly implement various health management requirements. By continuously improving the health management system, we continue to optimize the on-site working environment and constantly improve the level of health management and service.

Management of Occupational Health and Safety

Management Philosophy Framework

Adhering to the core concepts of "general security" and "general health", we regard protecting employees' lives and health as our own responsibility, adhere to the people-oriented principle, and promote safe and green development. In order to achieve the goal of taking the letter of responsibility for work safety as the core, the Wind Power Business Unit has comprehensively strengthened the management of safety and environmental protection, and occupational health in strict accordance with the requirements of the occupational health and safety management system and work safety standardization. We have specially formulated the EHS policy: providing clean energy, advocating green environmental protection; insisting on safe operation and achieving sustainable development. Under the guidance of this policy, we are committed to continuously creating healthy and safe working conditions, effectively preventing and eliminating all kinds of safety and environmental protection accidents, aiming at fully establishing, effectively implementing and continuously maintaining EHS management system and laying a solid foundation for sustainable development of our enterprise.

The Wind Power Business Unit continuously improves and optimizes the EHS system according to the requirements of the Occupational Health and Safety Management System Standard (ISO 45001:2018). At the same time, more than 20 relevant systems such as the Environmental and Occupational Health and Safety Management Manual, the Responsibility System for Prevention and Control of Occupational Diseases and the Occupational Health Management System have been formulated in close combination with relevant laws and regulations such as the Law of the People's Republic of China on Work Safety, the Law of the People's Republic of China on the Prevention and Control of Occupational Diseases, the Fire Protection Law of the People's Republic of China, the Emergency Response Law of the People's Republic of China and the Regulations on Reporting, Investigation and Disposition of Accidents Disrupting Work Safety. In addition, we have issued the Emergency Plan for Work Safety Accidents. These measures aim to ensure that there are laws and rules to abide by in the occupational health and safety management of the Unit, and continuously promote the normalization and standardization of the EHS system.

Under the unified management framework of CRRC Zhuzhou Institute, the General Manager of Wind Power Business Unit, as the first person in charge, is fully responsible for occupational health and safety management to ensure that policies and objectives are consistent with organizational strategies. Establish a safety committee to uniformly lead and guide the overall development of work safety in the Unit. In order to further improve the effectiveness of EHS management system in Wind Power Business Unit, a full-time staff is specially appointed as the Management Representative. The representative is responsible for establishing, implementing and continuously optimizing the EHS management system in accordance with ISO14001:2015 and ISO45001:2018 standards, ensuring that it maintains a high degree of alignment with international standards, and reporting regularly to the General Manager on system performance and potential opportunities for improvement. At the same time, enhance the EHS awareness of all employees through various forms to ensure the smooth operation of the system.

Response to Risks and Opportunities

In order to effectively control the risks and opportunities in the field of occupational health and safety, the Wind Power Business Unit has hereby prepared the Procedure of Environment Aspect/Hazard Source Identification and Assessment and the Management Measures for Hazard Source Identification and Safety Risk Classification Control. When planning the EHS management system, we comprehensively reviewed the current situation of the Unit, changes in external environment and demands and expectations of stakeholders, and closely combined with the evaluation results of EHS factors and compliance obligations. We have deeply explored the environmental factors and hazard source in the whole life cycle of activities, products and services, systematically identified and evaluated them, and defined specific measures to deal with risks and grasp opportunities. At the same time, we have established clear management objectives and their implementation plans to ensure that risks are properly controlled and opportunities are fully explored and utilized. We have paid special attention to the important environmental factors and hazard source that have or may have a significant impact, and have fully communicated and transmitted them among all levels and functions of the Unit. Through this series of well-planned and powerful measures, the Wind Power Business Unit will continuously improve EHS performance and lay a more solid foundation for creating a safe and healthy working environment.

The Wind Power Business Unit has clarified the specific requirements for external suppliers (including contract parties) in terms of EHS by formulating and implementing the Stakeholders Control and Management Procedure, Procurement Control Procedure and supporting EHS management measures and operating procedures. At the same time, we have fully considered the full life cycle environmental impact and hazard information requirements related to products or services, including major environmental impacts and potential hazards that may arise in transportation, delivery, use process, as well as treatment and final disposal stages after the end of product life, so as to ensure that relevant information is properly managed and effectively transmitted.

◆ EHS Objectives

We have formulated the Management Plan for EHS System of Wind Power Business Unit in 2024, which clarifies the annual objectives and organizational structure division. At the same time, four implementation plans for EHS management key work, inspection, required knowledge and skills and emergency rescue were planned in detail to ensure the orderly development of EHS work and comprehensively improve the safety management level of the Unit.

During the reporting period, there were no work-related fatal accidents and occupational disease cases, and all indicators were successfully achieved.

Work safety indicators

- Zero death or serious injury due to work safety liability accidents
- Zero major equipment loss accident
- Zero major safety violation
- Minor injury rate per 1,000 people ≤2.0‰
- The accumulative direct economic loss of work safety liability accidents shall be controlled within RMB 500,000

Occupational health indicators

- Zero new on-the-job occupational disease
- Zero major occupational injury accident

In 2024, the Wind Power Business Unit will deepen safety work into grassroots management and focus on promoting 6 core tasks of safety and environmental protection to realize the organic combination of comprehensive management and key breakthroughs.

Among them, the 4 key tasks for management improvement include:

- Strengthen safety risk management and control, take business as the core, build a safety risk assessment model, classify risk levels for various high-risk events (operations), optimize emergency reporting processes, establish a hierarchical response mechanism, and improve response efficiency.
- Strengthen intrinsic safety, improve equipment safety through technical transformation, implement intelligent + digital safety protection technical transformation for cranes, and strengthen safety supervision of special equipment; develop anti-falling devices for hoisting from high altitude; complete at least 3 safety technical transformations for wind farm operations to improve safety.
- Strengthen the general security culture, improve the system and consolidate the integrated management. Strengthen fire investigation inspection and install intelligent equipment to eliminate hidden fire hazards. Build a "healthy home" according to the standard of "healthy enterprise", establish a linkage mechanism, and enhance emergency response capacity. Solve the problem of occupational diseases and build a "isolation wall" through engineering technology and management.
- Strengthen the safety and environmental protection management of diversified businesses, identify risks from multiple dimensions such as compliance, data, equipment and environment, formulate emergency response plans, create personalized control modules, standardize management, improve risk libraries, and ensure effective risk identification and control.

At the same time, we have carried out two creation tasks: First, we will create a standardized enterprise of work safety and take the first-class enterprise evaluation standard as the guide to solidly promote standardization construction; Second, we will create a green supply chain management enterprise, highlight green elements, accelerate the construction of green manufacturing system, and promote upstream and downstream enterprises to jointly improve resource utilization efficiency and environmental performance.

Through measures such as special rectification, formulation of plans and implementation of activities, we ensured the effective implementation of various tasks and comprehensively improved the safety and environmental protection management level of the Unit.

CASE The Wind Power Business Unit Introduced Intelligent Equipment to Improve the Working Environment and Ensure the Occupational Health of Employees

In view of the problems of loud noise and long operation time in bolt fastening operations on the manufacturing site, we invested 300W to introduce a variable pitch bearing stretching robot system to realize automatic assembly, which greatly reduces the risk of employees exposed to occupational hazards. At the same time, in view of musculoskeletal injuries caused by many manual operations and harsh working environment during operation and maintenance of wind farms, the Company's technical department and safety management department have continuously improved climbing devices from free-climbing to climbing aid, and then to climb/hoist auto system, which has effectively reduced the labor intensity of employees, prevented occupational injuries, ensured the health and safety of operators, and realized the "less manned and healthy" management.

	Description	Unit	2023	2024
Workforce health & safety	Number of employees in occupational disease risk positions	Person(s)	0	0
	Coverage rate of occupational health examination for employees	%	100	100
Safety accidents and personnel	Number of employees suffering work-related injuries	Person(s)	0	0
	Number of people with occupational diseases	Person(s)	0	0
	Number of work-related deaths	Person(s)	0	0
	Total recorded accident rate	%	0	0
	Death rate per million working hour	%	0	0
	Number of traffic accidents	Case(s)	0	0

◆ System Certification

In order to further strengthen the standardization of occupational health and safety management, improve the overall level of occupational health management, and effectively control and reduce occupational disease accidents, the Wind Power Business Unit actively deepens the practice of occupational health management. We have established and fully implemented the ISO 45001 Occupational Health and Safety Management System, and actively accepted strict review by a third-party certification body. In July 2023, the Wind Power Business Unit obtained ISO 45001:2018 Occupational Health and Safety Management System Certificate, which is valid until October 23, 2026.



◆ Safety Inspection and Training

The Wind Power Business Unit is committed to building a safe, harmonious and positive working environment and organizational atmosphere. We are well aware of the depth and breadth of safety inspection and the importance of training and education, so we continuously increase the intensity of safety publicity to improve employees' health awareness and safety quality in an all-round way.

Implementation of EHS inspection

In 2024, we have carefully formulated the implementation plan of EHS inspection, which covers three major aspects: comprehensive inspection, special inspection and daily inspection to ensure that the inspection work is comprehensive, scientific, standardized and meticulous.

In terms of comprehensive inspection, we have implemented multiple mechanisms such as quarterly inspection, pre-festival inspection and safety evaluation. According to the annual key work plan, work safety standardization specification, responsibility letter of annual safety management objectives and EHS system documents of the Unit, we will comprehensively outline and inspect the basic management, electrical system, mechanical equipment, thermal explosion protection, working environment and occupational health, four new technologies management, implementation of safety management information system and development of lean safety stations every quarter. Before holidays, we will also carry out special safety inspections on important hazard sources and environmental factors, check the arrangement of safety measures for overtime work during holidays, as well as the duty arrangements of leaders and managers. In addition, we have also inspected and evaluated each site according to the requirements of CRRC's 1000-point safety production standard, carried out 1000-point safety level benchmarking, and published the scoring and safety level in time to encourage all departments to continuously improve their safety management level.

In terms of special inspection, we have carried out a series of special inspection activities such as special equipment safety inspection, lightning protection and grounding detection, hazardous chemical safety inspection, lifting appliance safety inspection, vehicle safety inspection, heatstroke prevention and cooling safety inspection, energy-saving inspection, stakeholders safety inspection and special operation safety inspection according to relevant documents such as the Management Measures for Slings and Rigging of Wind Power Business Unit and the Management Measures for Energy Conservation of Wind Power Business Unit to ensure that all safety management work is implemented.

In terms of daily inspection, we conducted a comprehensive inspection on personnel behavior, site state and lean stations in strict accordance with the requirements of safety management system, post safety operation procedures and operation specifications. We focus on whether employees comply with relevant regulations and systems, the wearing and use of labor protection appliances, equipment and facilities, site environment and other aspects, as well as the development of lean safety stations. Through continuous daily inspection, we can timely discover and correct potential safety hazards to ensure the smooth operation of the production process.

Safety education training

In 2024, the Wind Power Business Unit has carefully planned and implemented a series of targeted training and education activities for different groups such as middle-level and above leaders, full-time and part-time safety management related personnel, special and dangerous operation personnel, technical/process/equipment management personnel, on-site operation personnel, energy conservation management personnel, new employees and personnel transferred to other jobs or returning to work. The training methods are flexible and diverse, including internal professional training (internal training) and external expert teaching (external training), so as to ensure the richness and practicability of the training content.

The training topics cover many aspects such as hazard source identification and control, emergency rescue skill improvement, EHS site management and enterprise safety management practice, occupational health and safety system and team leader safety management skills training, offshore operation safety specifications, etc., aiming at comprehensively improving the safety awareness and professional skills of personnel at all levels.

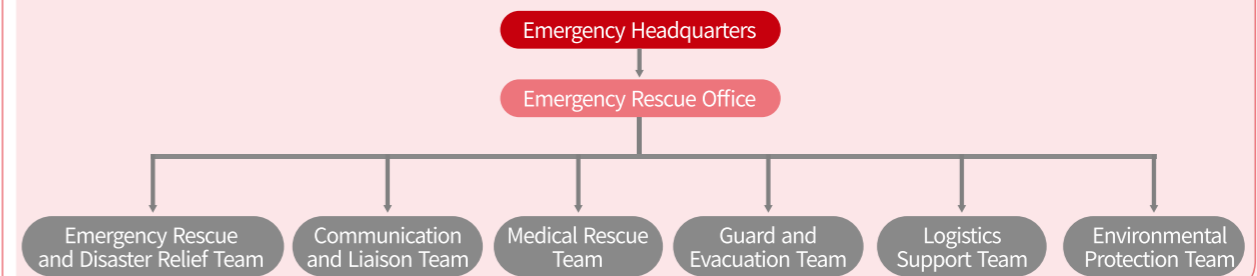
In order to ensure the training effect, we have specially designed a test link of required knowledge and skills to verify and evaluate the learning results of trainees, so as to ensure that each employee can firmly grasp what he/she has learned and flexibly apply it in practical work.

Through this series of targeted and content-rich training and education activities, we have effectively improved the safety literacy and professional skill levels of all employees, laying a solid foundation for work safety.

Emergency drill

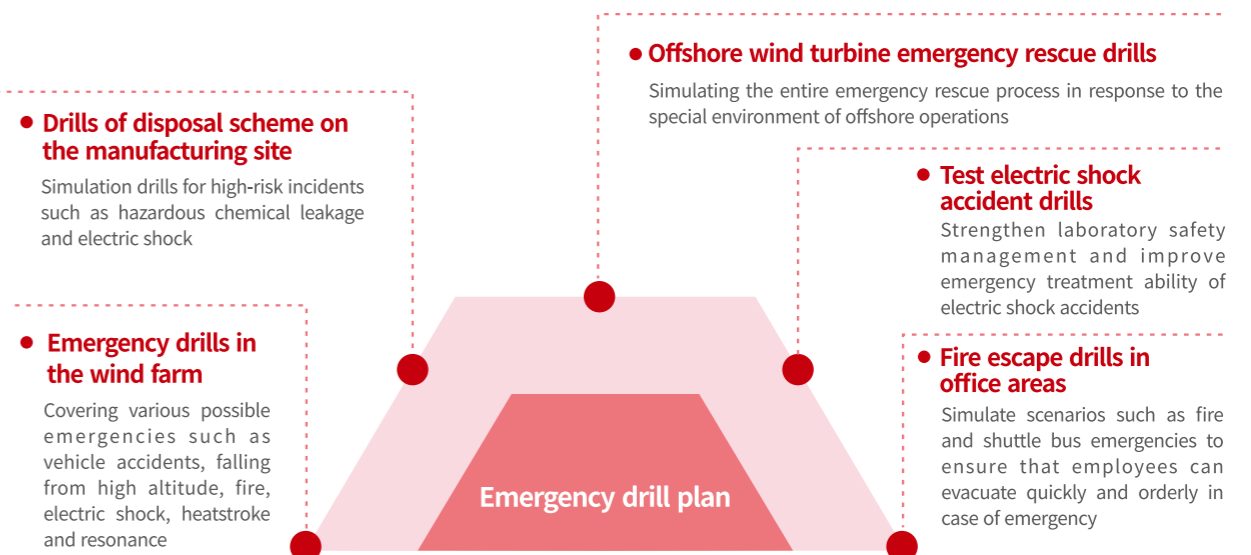
In order to fully implement the laws and regulations such as the Work Safety Law of the People's Republic of China and the Regulations on Emergency Response to Work Safety Accidents, the Wind Power Business Unit has prepared the Emergency Plan for Work Safety Accidents to standardize emergency management and enhance risk response and accident prevention capabilities. It aims to ensure the life safety of employees and minimize casualties, property losses and social impacts. Therefore, the Emergency Rescue Headquarters for Work Safety Accidents is specially set up to clarify its responsibilities and be responsible for dealing with emergencies. At the same time, it has optimized processes for information reporting, early warning, response initiation, emergency disposal, emergency support and response termination, formulated 11 special emergency plans for electric shock, falling from heights, mechanical injury and fire, and clarified on-site disposal schemes for 15 types of accidents.

The emergency rescue organization system chart is as follows:



In 2024, based on the Overall Emergency Plan for Environmental Emergencies of Wind Power Business Unit, we have carefully planned a series of emergency drill plans to improve our emergency response capability through practical training. Specifically, it includes: Drill of disposal scheme on the manufacturing site, simulation drills for high-risk incidents such as hazardous chemical leakage and electric shock; Emergency drills in the wind farm, covering various possible emergencies such as vehicle accidents, falling from high altitude, fire, electric shock, heatstroke and resonance; Offshore wind turbine emergency rescue drill, simulating the entire emergency rescue process in response to the special environment of offshore operations; Test electric shock accident drills, strengthen laboratory safety management and improve emergency treatment ability of electric shock accidents; As well as fire escape drills in office areas, simulate scenarios such as fire and shuttle bus emergencies to ensure that employees can evacuate quickly and orderly in case of emergency.

Through these multi-type and all-round emergency drills, we will continuously improve the emergency response capability and practical level of the Unit, laying a solid foundation for ensuring work safety and maintaining the safety of employees' lives and property.



CASE

Emergency Drill for Fire and Environmental Accidents in Hazardous Waste Temporary Storage Room of Liyu Industrial Park of Wind Power Business Unit

In April 2024, we planned and carried out the emergency drill for fire and environmental accidents in hazardous waste temporary storage room of Liyu Industrial Park of Wind Power Business Unit. The drill covered emergency reporting, primary fire disposal of grease and environmental pollution accident response, involving multiple working groups such as On-site Headquarters, Fire Fighting Team, Dangerous Goods Transfer Team and On-site Alert Team.

During the drill, under the leadership of the leaders of the Manufacturing Center of Wind Power Business Unit, all employees responded quickly and took effective measures to put out the fire and control pollution, thus effectively protecting the life safety of employees and reducing environmental pollution. Each working group has a clear division of labor and implements the standard, which fully tests and improves the emergency response capability of the Wind Power Business Unit and the safety awareness of employees. The drill aimed at building an efficient emergency system to ensure that rescue can be carried out quickly and orderly in case of environmental protection and fire accidents, so as to minimize losses. It was of great significance for improving the Unit's comprehensive ability to deal with sudden production accidents.

Pay Attention to Employee Health Management

The Wind Power Business Unit strictly follows the Management Measures for Employee Physical Examination formulated by CRRC Zhuzhou Institute, and regularly organizes all employees to have physical examination. Pay special attention to the physical and mental health of female employees, arrange special gynecological examinations for them every year, as well as "two cancers" screening for breast cancer and cervical cancer, so as to ensure that each employee can know their own health status in a timely manner and effectively implement the concept of caring for employees' health.

At the same time, in order to further improve the well-being of employees, the Wind Power Business Unit has defined the specific objects, methods, subsidy standards and expense reimbursement process of employee rehabilitation according to the Management Measures for Employee Rehabilitation formulated by the Company's labor union. The Measures stipulates that all employees who have signed a formal labor contract with the Company and have worked for two years, as well as rehired personnel, can enjoy an opportunity of recuperation once a year according to the established standards. This not only reflects the company's recognition and gratitude to employees' hard work, but also attaches great importance to and cares for their physical and mental health.



Employee Rights and Interests, Full Protection

Improve the Salary System

Under the unified deployment of CRRC Zhuzhou Institute, the post performance-based salary system has been reformed in 2024. The Wind Power Business Unit responded positively and successfully completed the standard modification of the salary system for all employees in October 2024. This reform follows the basic principle of "determining salary grade by post grade, determining bonus by performance, determining welfare by hierarchy and determining allowance by position", and builds a more scientific and reasonable salary system.

We are adhering to the "precise and specialized, contribution-oriented" talent management concept. Through hierarchical evaluation, employees are guided to attach importance to value evaluation and accelerate the growth of their own abilities, laying a solid foundation for undertaking more important positions. At the same time, through performance evaluation, employees are encouraged to base themselves on their job responsibilities and strive to create better results, thus contributing higher value to the organization. The Company has always adhered to the principle of fair and just remuneration, ensuring that male and female employees enjoy equal treatment in performance pay, with basically consistent salary ranges, demonstrating equality and respect for enterprises.

In order to share the long-term value of the enterprise with our employees, we adhere to the principle of "pay for performance", and give higher compensation return to employees who perform better when other conditions are equal. To this end, we have planned and formulated the salary incentive reform plan of "basic salary + profit dividend" and ensured its effective implementation. At the same time, we have also tailored incentive plans according to the characteristics of our product lines to fully stimulate their vitality and potential. In addition, we have continuously improved and optimized the VAM appointment mode of regional system and market-oriented salary incentive, aiming to further enhance the incentive effect, stimulate the enthusiasm and creativity of employees, and jointly promote the sustainable development of enterprises.

Comprehensive Welfare Guarantee

CRRC Zhuzhou Institute strictly abides by various national and local laws and regulations, and has built a comprehensive and perfect welfare system for all employees. In terms of statutory welfare, the Company pays basic endowment insurance, basic medical insurance (including mutual medical aid for serious illnesses), work-related injury insurance, maternity insurance, unemployment insurance and housing provident fund for employees to ensure that their basic living is firmly guaranteed.

In addition, CRRC Zhuzhou Institute also actively gives full play to its corporate autonomy and provides employees with a variety of independent benefits. This includes enterprise annuity and supplementary medical insurance to alleviate employees' worries; food subsidies, transportation subsidies, communication subsidies, etc. to effectively improve the quality of life of employees; health care allowances, annual physical examinations, recuperation opportunities, etc. to pay full attention to the physical and mental health of employees; at the same time, the company has also set up a mutual aid fund, which will send warm sympathy during festivals to create a harmonious and warm corporate atmosphere.

In terms of the leave system, CRRC Zhuzhou Institute strictly follows the relevant provisions of the Regulations on Paid Annual Leave for Employees and the Implementation Measures for Paid Annual Leave for Employees of Enterprises to ensure that employees can enjoy various vacation rights such as weekends, statutory holidays, marriage and funeral leaves, maternity leave (parental leave). In addition, the Company also implements a paid annual leave system that matches the working years of employees, so that employees can have full rest and enjoy life after hard work.

The Wind Power Business Unit has always strictly followed the Company's regulations to ensure that every employee can enjoy this comprehensive and considerate welfare guarantee, so that employees can live happily while working at ease and jointly contribute to the vigorous development of the Company.



Employee Democratic Communication

In order to further deepen communication with employees and earnestly follow the fundamental principle of democratic centralism, CRRC Zhuzhou Institute strictly abides by laws and regulations such as the Trade Union Law of the People's Republic of China, respects employees' free association rights and collective bargaining rights, and the Company's collective bargaining agreements cover 100% of all contract employees. At the same time, we actively promote the protection of employees' rights and interests through democratic management measures and ensure smooth and efficient communication channels. The Company has established the workers' congress system. As the core operating body of the workers' congress, the labor union committee shoulders the important responsibility of democratic supervision and is committed to the fine management of employee relations and the fair handling of labor disputes. We actively build and continuously improve the communication bridge between enterprises and employees, and are committed to building an open, inclusive, transparent and efficient communication platform. On this platform, we fully safeguard the legitimate rights and interests of employees and strive to promote the harmonious, stable, sustainable and healthy development of enterprises.

The Wind Power Business Unit is committed to creating a harmonious and free communication atmosphere, listening carefully to the voices and demands of each employee, and making every effort to smooth the communication channels between employees and the Company. The trade union has become a solid bridge connecting employees with each other and employees with the company. In addition, we also actively put forward valuable suggestions or opinions to the company or the Unit through various forms such as regular employee symposiums and democratic life meetings. These suggestions cover many aspects such as administrative operation, career development, salary and welfare, logistical support, etc., aiming at jointly promoting the sustainable development and progress of the Unit.



Contribute to Society and Share the Value

We are fully aware that the development of enterprises is inseparable from national prosperity and social support, and we have always actively fulfilled our corporate responsibilities to strive for sharing, co-creation and win-win results. Through honest operation and paying taxes in accordance with the law, we contribute to economic construction and help social development. At the same time, it responds to the Belt and Road Initiative and expands international cooperation. It pays attention to rural revitalization and participates in public welfare projects to realize the unification of social value and enterprise value. We will uphold the concept of giving back to society and sharing values, and continue to make contributions to building a harmonious society.

Tax Payment and Economic Contribution

The Wind Power Business Unit has always adhered to the principle of paying taxes in good faith, actively fulfilled its social responsibilities and contributed to national development. We have maintained close communication with the Tax Bureau to ensure that tax payment is carried out in an orderly manner, and successfully completed the standardized payment of VAT inputs, demonstrating good tax compliance.

At the same time, we closely follow the dynamics of the national tax law and actively respond to the VAT input tax credit policy. Through refined tax management, we have not only contributed more tax revenue to the country, but also enjoyed preferential policies, achieving a win-win situation for enterprises and the country.

In addition, we actively responded to the national policy of encouraging employment, recruited college graduates within the graduation year, signed long-term labor contracts and paid social security according to law. We not only injected fresh blood into the development of enterprises, but also enjoyed tax relief according to policies and regulations, which further reflected the positive role of Wind Power Business Unit in promoting employment and contributing tax revenue. In the future, we will continue to stay true to our original aspiration and make greater contributions to national economic development and social progress.

Community Co-construction and Social Welfare

In the wave of new energy development, the Wind Power Business Unit has made great efforts in various fields such as the Belt and Road Initiative, rural revitalization and social welfare with its unique advantages and firm determination, contributing important strength to the national development strategy.

The Shuang'an 46.2MW Wind Power Project in Gia Lai Province, Vietnam is the first overseas complete wind power project of CRRC Zhuzhou Institute Wind Power Business Unit. The total installed capacity of the Project is 46.2MW, and 14 sets of 3.3MW D160 WTGSs produced by the Wind Power Business Unit are adopted, with a tower height of 140m. The hoisting of the first WTGS was completed on June 9, 2021.

Upon completion, the project is expected to generate 120,433 MWh of electricity per year and reduce carbon emissions by about 95,148 tons. This is our latest achievement in promoting the "the Belt and Road Initiative" and accelerating the pace of international development. At the same time, it has set a benchmark for China-Vietnam new energy cooperation and laid a foundation for the Company to expand overseas markets.



CASE

To Support Rural Revitalization, the Wind Power Business Unit Sends Backbones to the Grassroots to Contribute Their Wisdom and Efforts

The Wind Power Business Unit actively responded to the national call for rural revitalization and took the initiative to send business backbones to serve as temporary deputy secretaries in Napo County, Guangxi. They went deep into the grassroots front line and devoted themselves wholeheartedly to helping local economic development. With advanced management concepts and technical means, they have actively promoted the upgrading and transformation of local industries, injecting new vitality into the economy of Napo County.



The Wind Power Business Unit also actively practices social welfare and expands care and responsibility to a broader field. We attach particular importance to the development of education and have organized diversified activities such as student assistance, construction of activity rooms and public welfare study tour, aiming to sent knowledge to children and illuminate their way forward.

CASE

Jointly Organizing Extracurricular Research and Learning Activities Through School-enterprise Cooperation


On September 20, 2024, on the occasion of the 75th anniversary of the founding of the People's Republic of China, the 143rd anniversary of CRRC's entrepreneurship and the sixth "CRRC Day", the Wind Power Business Unit, together with Ningxia CRRC and Daidian No.2 Primary School in Haiyuan County, Ningxia, jointly held a school-enterprise collaborative extracurricular research and learning activity with the theme of "Love for the Motherland · Heart of CRRC" at Zhongwei Base in Ningxia.


This research and learning activity not only deepened the friendship between Zhongwei Base and Daidian No.2 Primary School through school-enterprise cooperation, but also laid a solid foundation for future cooperation between the two parties. The Wind Power Business Unit will continue to uphold a highly responsible attitude towards the country and society. While actively fulfilling its social responsibility as a central enterprise, it will increase public welfare investment in various social organizations in Haiyuan County and jointly organize various forms of social public welfare activities to contribute to the local rural revitalization.



Annex

Assurance Statement





ASSURANCE STATEMENT

CN25/00001473

SGS-CSTC'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE CRRC ZHUZHOU INSTITUTE CO., LTD. WIND POWER BUSINESS UNIT'S SUSTAINABILITY REPORT FOR 2024

NATURE OF THE ASSURANCE/VERIFICATION
 SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. (hereinafter referred to as SGS) was commissioned by CRRC ZHUZHOU INSTITUTE CO., LTD. WIND POWER BUSINESS UNIT (hereinafter referred to as CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT) to conduct an independent assurance of the Chinese version of CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT'S Sustainability Report for 2024 (hereinafter referred to as the Report).

INTENDED USERS OF THIS ASSURANCE STATEMENT
 This Assurance Statement is provided with the intention of informing all CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT's Stakeholders.

RESPONSIBILITIES
 The information in the Report and its presentation are the responsibility of the general manager and the management of CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the text, data and statements within the scope of assurance with the intention to inform all CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT's stakeholders.

SGS hereby states that it shall not be held responsible or liable for any direct, indirect, incidental, or consequential damages or losses arising from or in connection with the use of information provided in this report.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE
 The SGS ESG & Sustainability Report Assurance (SRA) protocols used to conduct assurance are based upon internationally recognised assurance standards including the AA1000 series of standards and ISAE3000.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options	Level of Assurance
AA1000AS v3 Type 2	Moderate

SCOPE OF ASSURANCE AND REPORTING CRITERIA
 The assurance engagement was conducted to evaluate the accuracy and reliability of the sustainability performance information included in the Report. Additionally, it assessed the extent to which the Report's content refers to the requirements of GRI Standards 2021.

ASSURANCE METHODOLOGY
 The assurance comprised a combination of pre-assurance research, on-site interviews with relevant employees at the office location of the CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT, located at 58 District, Liyu Industrial Park, Tianyuan District, Zhuzhou City, Hunan Province, P.R. China; documentation and record review and validation where relevant.

LIMITATIONS AND MITIGATION
 Data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.



The greenhouse gas emissions related data in the Report has not undergone verification by an independent third-party auditor. In the context of the present assurance engagement, our procedures were limited to sample-based validation.

This assurance engagement was restricted to the group level of CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT and did not include traceability of original data from all subordinate institutions.

STATEMENT OF INDEPENDENCE AND COMPETENCE
 The SGS Group of companies is the world leader in inspection, testing and certification, operating in multiple countries and providing services. SGS affirm our independence from CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment.

FINDINGS AND CONCLUSIONS

ASSURANCE/VERIFICATION OPINION
 On the basis of the methodology described and the assurance engagement performed, the specified performance information included in the scope of assurance is accurate, reliable, and has been fairly stated.

CONCLUSIONS, FINDINGS AND RECOMMENDATIONS BASED ON GRI STANDARDS 2021
 The assurance team concludes that the Report has referred to the requirements of GRI Standards 2021.

FINDINGS AND RECOMMENDATIONS
 All observations pertaining to commendable practices, sustainable development activities, and managerial recommendations identified throughout the assurance process have been thoroughly documented in the Internal Management Report on Sustainability Reporting Assurance. This report has been officially presented to the relevant management divisions of CRRC ZHUZHOU INSTITUTE WIND POWER BUSINESS UNIT to serve as a reference for their ongoing efforts towards continuous improvement.

Signed:



For and on behalf of SGS-CSTC

David Xin
 Sr. Director – Business Assurance
 16/F Century Yuhui Mansion, No. 73, Fucheng Road, Beijing, P.R. China

Mar. 12th, 2025
 WWW.SGS.COM



Indicator Indexes

Index of GRI Sustainability Report Standards Indicators

◆ **Statement of Use** CRRC Zhuzhou Institute Wind Power Business Unit has reported in accordance with the GRI Standards for the period from January 1 to December 31, 2024.

◆ **GRI 1 used** GRI 1: Foundation 2021

GRI Standards No.	Content of GRI Standards	Chapter
GRI 2: General Disclosures 2021		
2-1	Organizational details	About Us
2-2	Entities included in the organization's sustainability report	About This Report
2-3	Reporting period, frequency and contact point	About This Report
2-4	Restatements of information	First report; not involved
2-5	External assurance	Authentication Report
2-6	Activities, value chain and other business relationships	About Us; Full-chain Collaboration and Lean Operation
2-7	Employees	Fair Employment, Diversity and Integration
2-8	Workers who are not employees	Fair Employment, Diversity and Integration
2-9	Governance structure and composition	Consolidate the organization and lay a foundation; Sustainability management
2-10	Nomination and selection of the highest governance body	Consolidate the Organization and Lay a Foundation
2-11	Chair of the highest governance body	Consolidate the organization and lay a foundation; Sustainability management
2-12	Role of the highest governance body in overseeing the management of impacts	Consolidate the Organization and Lay a Foundation
2-13	Delegation of responsibility for managing impacts	Consolidate the Organization and Lay a Foundation
2-14	Role of the highest governance body in sustainability report	Consolidate the organization and lay a foundation; Sustainability management
2-15	Conflicts of interest	Consolidate the Organization and Lay a Foundation
2-16	Communication of critical concerns	Consolidate the Organization and Lay a Foundation
2-17	Collective knowledge of the highest governance body	Responsible Governance, Harnessing the Wind for Steady Progress
2-18	Evaluation of the performance of the highest governance body	Consolidate the Organization and Lay a Foundation
2-19	Remuneration policies	Consolidate the organization and lay a foundation; Improve the Salary System
2-20	Process to determine remuneration	Consolidate the organization and lay a foundation; Improve the Salary System
2-22	Statement on sustainable development strategy	General Manager's Speech
2-23	Policy commitments	See each chapter of the report for details
2-24	Embedding policy commitments	See each chapter of the report for details
2-25	Processes to remediate negative impacts	Supplier lifecycle management; Customer service and rights protection; Employee Democratic Communication
2-26	Mechanisms for seeking advice and raising concerns	Whistleblower protection; Employee Democratic Communication
2-27	Compliance with laws and regulations	See each chapter of the report for details
2-28	Membership associations	Promotion of Industry Progress

GRI Standards No.	Content of GRI Standards	Chapter
2-29	Approach to stakeholder engagement	Sustainability management
2-30	Collective bargaining agreements	Employee Democratic Communication
GRI 3: Material Topics 2021		
3-1	Process to determine material topics	Sustainability management
3-2	List of material topics	Sustainability management
3-3	Management of material topics	Sustainability management
GRI 201: Economic Performance 2016		
201-1	Direct economic value generated and distributed	Key Performance
201-2	Financial implications and other risks and opportunities due to climate change	Climate Challenge, Proactive Response
GRI 203: Indirect Economic Impacts 2016		
203-1	Infrastructure investments and services supported	Community co-construction and social welfare
GRI 205: Anti-corruption 2016		
205-2	Communication and training about anti-corruption policies and procedures	Establish the enterprise with ethics and put responsibility first
GRI 207: Tax 2019		
207-1	Approach to tax	Tax Payment and Economic Contribution
GRI 302: Energy 2016		
302-1	Energy consumption within the organization	Key Performance; Resource Utilization
302-4	Reduction of energy consumption	Resource Utilization and Efficient Recycling
GRI 303: Water and Effluents 2018		
303-3	Water withdrawal	Key Performance
303-4	Water discharge	Key Performance
GRI 304: Biodiversity 2016		
304-2	Significant impacts of activities, products and services on biodiversity	Biodiversity Conservation as Priority
GRI 305: Emissions 2016		
305-1	Direct (Scope 1) GHG emissions	Environmental management, optimization and improvement
305-2	Energy indirect (Scope 2) GHG emissions	Environmental management, optimization and improvement
305-4	GHG emissions intensity	Environmental management, optimization and improvement
GRI 306: Waste 2020		
306-1	Waste generation and significant waste-related impacts	Waste management
306-2	Management of significant waste-related impacts	Waste management
306-3	Waste generated	Waste management

GRI Standards No.	Content of GRI Standards	Chapter
GRI 308: Supplier Environmental Assessment 2016		
308-1	New suppliers that were screened using environmental criteria	Full-chain Collaboration and Lean Operation
308-2	Negative environmental impacts in the supply chain and actions taken	Full-chain Collaboration and Lean Operation
GRI 401: Employment 2016		
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Comprehensive Welfare Guarantee
GRI 403: Occupational Health and Safety 2018		
403-1	Occupational health and safety management system	Occupational Health, Safety Protection
403-5	Worker training on occupational health and safety	Occupational Health, Safety Protection
403-6	Promotion of worker health	Occupational Health, Safety Protection
403-8	Workers covered by an occupational health and safety management system	Occupational Health, Safety Protection
403-9	Work-related injuries	Occupational Health, Safety Protection
GRI 404: Training and Education 2016		
404-2	Programs for upgrading employee skills and transition assistance programs	Talent cultivation and experience inheritance
404-3	Percentage of employees receiving regular performance and career development reviews	Diversified career development system
GRI 405: Diversity and Equal Opportunity 2016		
405-1	Diversity of governance bodies and employees	Fair Employment, Diversity and Integration
405-2	Ratio of basic salary and remuneration of women to men	Key Performance
GRI 413: Local Communities 2016		
413-1	Operations with local community engagement, impact assessments, and development programs	Sustainability management; Waste management; Community co-construction and social welfare; Biodiversity, protection first
GRI 416: Customer Health and Safety 2016		
416-1	Assessment of the health and safety impacts of product and service categories	Excellent quality, persistent pursuit of perfection
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Excellent quality, persistent pursuit of perfection
GRI 417: Marketing and Labeling 2016		
417-3	Incidents of non-compliance concerning marketing communications	Adhere to Responsible Marketing
GRI 418: Customer Privacy 2016		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Information Security; Customer Service and Rights Protection

Feedback & Suggestions

Dear readers,

Thank you sincerely for reading the "2024 Sustainability Report of CRRZ Zhuzhou Institute Co., Ltd. Wind Power Business Unit" In order to present more valuable information to you and other stakeholders, and at the same time promote our continuous improvement of sustainable development management ability and level, we sincerely invite you to put forward valuable opinions and suggestions on this report. Your feedback will be the driving force for our continuous improvement.

Feedback questionnaire

1. Which of the following stakeholders do you belong to?

- Government
 Regulatory authority
 Shareholders and investors
 Customer
 Employee
Supplier and partner
 Community public
 NGO
 Other

2. What is your overall evaluation of this report?

- Excellent
 Good
 Average

3. How do you rate the clarity, accuracy, and completeness of the information and data disclosed in this report?

- Excellent
 Good
 Average

4. How well do you think this report reflects our significant economic, social and environmental impacts?

- Excellent
 Good
 Average

5. How do you think we are doing in safeguarding the interests of stakeholders?

- Excellent
 Good
 Average

6. Your opinions and suggestions on the sustainable development management of the Group:

Feedback method

Address: 58 District, Liyu Industrial Park, Tianyuan District, Zhuzhou City, Hunan Province

Contact: Xu Xiang

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