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**Goldwind**

Xinjiang Goldwind Science & Technology Co., Ltd. Sustainability Report 2022

# 2022

## Sustainability Report

# About the Report

This is the 2022 Sustainability Report of Xinjiang Goldwind Science & Technology Co., Ltd., disclosing information about the Company's social responsibility and commitment to sustainable development in 2022.

## Scope

This report is mainly about Xinjiang Goldwind Science & Technology Co., Ltd. (hereinafter referred to as "Goldwind" or "the Company"), covering Goldwind and its subsidiaries. Apart from certain organizations, the scope is consistent with the annual report issued by the Company.

## Reporting Frequency

This report is an annual report covering the period from January 1, 2022 to December 31, 2022. To ensure the continuity and clarity of disclosure, some of the content may go beyond the scope listed above.

## Reporting Reference

This report is compiled based on relevant requirements of the *Listing Rules of Hong Kong Stock Exchange* Appendix 27: Environmental, Social and Governance Reporting Guide, and the *No. 1 Self-regulatory Guidelines for Listed Companies – Standardized Operation of Companies Listed on the Main Board* of Shenzhen Stock Exchange. It also draws extensive reference from the United Nations Sustainable Development Goals (UN SDGs), the Ten Principles of the United Nations Global Compact (UNGC), the Global Reporting Initiative (GRI) *Sustainability Reporting Standards* (GRI-Standards), and other related documents.

## Principles of Report Preparation

This report is prepared based on the principles of materiality, quantitative, balance, and consistency to ensure the substance, scientificity, objectivity, and comparability of the report.

Materiality: The Company has set up an all-round identification process on relevant issues, and determines the disclosure content and scope through communication with stakeholders and evaluation by management-level personnel, etc.

Quantitation: The key quantitative performance indicators in this report follow scientific statistical standards, methods, calculation tools, and conversion factors. Important reference sources, calculation methods, and data changes are explained in the report definition.

Balance: This report objectively discloses Goldwind's sustainable development performance during the reporting period and avoids a presentation format that may inappropriately affect the decision-making and judgment of stakeholders.

Consistency: Unless otherwise specified, the statistical methods and basis used in the disclosure of the content and data in this report are consistent with those for previous years.

## Notes on Data

The financial data in this report come from the Company's annual report. Other data come from internal statistics. Unless otherwise specified, all amounts are in RMB.

## Reporting Commitment

All the content and data disclosed in this report have been reviewed and approved by the Board of Directors of Goldwind. To ensure the authenticity and reliability of the report, the Company has engaged SWCS Corporate Services Group (Hong Kong) Limited to carry out independent third-party assurance on this report according to *AA1000 Assurance Standard V3* (AA1000AS V3).

## Board Statement

This report has been reviewed and approved by the Board of Directors of Goldwind. The Board guarantees that the reported content does not contain any false information or misleading statement.

## Report Availability

This report is available in both Chinese and English. Should there be any inconsistency between the two versions, the Chinese version shall prevail. To view and download this report, please visit www.goldwind.com, www.szse.cn, or www.hkenews.hk.

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# Content

# Letter from the Chairman

> In 2022, the issues of energy security and climate change loomed large, exacerbating the urgent need for a global energy transition. China's ecological civilization construction has entered a critical stage of taking carbon reduction as an important strategic direction, promoting the synergy of pollution reduction and carbon reduction, promoting the comprehensive green transformation of economic and social development, and realizing improvement of ecological environment with a focus on quality instead of quantity. In this epoch-making context, Goldwind is actively responding to the policies to address climate change and the call for carbon neutrality both in China and around the globe, supporting the transition of the energy structure with wind power, helping to build a new power system with new energy as the mainstay, adhering to the road of high-quality development, implementing the concept of harmony between human and nature, and creating a win-win situation through multi-party cooperation. While maintaining stable business development, we have contributed to sustainable development in the industry and society.

—— Wu Gang
Chairman of the Board of Goldwind

## Transforming wind power technologies through innovations

Goldwind's 20-plus-year development is about the Company's pursuit of technological innovations and leadership. The Company actively engages in technological innovations, builds innovative platforms, carries out collaborative innovations in major fields, and leads the trend of renewable energy technology development. In the era of grid parity, producing large-scale and intelligent wind turbines is a key way to reduce levelized cost of energy (LCOE) and improve power generation efficiency. In 2022, the Company launched many intelligent wind turbines of various platforms based on the permanent magnet direct drive (PMDD) technology, thus forming a technical route of "PMDD + medium-speed permanent magnet (MSPM)" wind turbine products. The Company can quickly respond to the complex and various needs of the market, covering a wider and more diverse range of usage scenarios. The GWH252-16 MW offshore wind turbines, developed and launched in cooperation with the China Three Gorges Corporation, have successfully overcome a series of key technical problems such as ultra-long flexible blades and the miniaturization of super-large capacity generators. The wind turbines have broken records with the world's largest single-unit capacity, the world's largest rotor diameter, and the lightest weight per megawatt. And this type of wind turbine made it to the list of Top 10 Most Important Products of National Interest in 2022 in China.

To ensure the reliability of large wind turbines, GTSim, a simulation software developed by the Company, can be used to simulate and design large rotors, long flexible blades, high tower wind turbines, etc., and has been certified by TÜV NORD, an international certification organization. The Company has also invested in the construction of the world's largest test platform for 16 MW wind turbine transmission, which can verify and improve the reliability of wind turbines. Thanks to digital technology, Goldwind's intelligent wind turbines can achieve 7×24 safe operation and dynamic health management. The Company continues to develop and improve the synergy between the power sources, power grids, power loads, and power storage for better continuity, stability, predictability, and controllability of the new power system.

## Practicing the concept of green and low-carbon high-quality development

Wind power is clean, efficient and renewable, and its amount globally is huge and inexhaustible. Therefore, wind power is one of the indispensable new energy sources for the transformation of the energy structure. With years of product life cycle assessment (LCA) experience, the Company will continue to explore the carbon reduction potentials of each production process to reduce the carbon emissions of wind power per kilowatt-hour. In 2022, the Company carried out LCA for three types of wind turbine. Their average $CO_2$ emission per kilowatt-hour of electricity generated is 5–8 grams, which is less than 1% of that of thermal power. The Company continues to enhance the nature of wind power in low carbon emission and environmental protection, and create environmentally friendly wind turbines. The impact of wind turbines on the environment has already been taken into consideration in the product development and design stage. We have developed shadow flicker control technology, bird protection devices, and low-noise technology to prevent and reduce adverse environmental impacts.

For the industry-wide problem of recycling decommissioned wind turbines, Goldwind takes advantage of its supply network in the wind power industry to establish a logistics and transportation network for wind turbine recycling. To maximize the residual value of recycled wind turbines, the Company keeps improving its ability in value evaluation, performance evaluation, and appraisal of wind turbines, as well as the ability of innovative reprocessing and manufacturing. In terms of blade recycling, on the one hand, Goldwind actively explores the alternatives to thermosetting resin composite and carries out R&D of new-type environmentally friendly blades; on the other hand, the Company innovates the recycling scheme of old blades and adopts 3D printing technology to achieve large-scale consumption of them.

The business operation of Goldwind follows the approach of high-quality development, that is, environment-first, green, and low-carbon. The Company continues to carry out energy conservation and emission reduction to protect the environment. The Company continues to build green factories, improve the efficiency of resource and energy use, avoid and reduce the use of harmful chemicals and waste discharge, carry out packaging recycling, and strive to explore a green production model that is in harmony with the nature. By the end of 2022, 4 of its factories have obtained the national certification for green factories, and 4 have obtained the provincial certification.

## Creating a win-win situation for all stakeholders

The corporate values of Goldwind urge it to actively undertake and fulfill its social responsibilities, fully consider the expectations and needs of different stakeholders, and strive to achieve win-win results with stakeholders such as shareholders, clients, employees, suppliers, and residents around wind farms.

In 2022, the Company continued to conduct business with prudence and create good investment returns for shareholders. We have enhanced the quality management model of "Long-distance Running in Wind Power" to ensure the quality of wind turbines and improve satisfaction of clients. We have created a healthy corporate culture and a lively atmosphere within the organization. We provide our employees with an equal, healthy, and safe working environment and build a good growth platform so that they can have good health and achieve self-development. We continue to carry out projects such as the Fully Optimized Industrial Chain and Green Supply Chain to improve the technology and management capabilities of our suppliers. We have worked with the companies along our supply chain to reduce carbon emissions, resulting in 45.89% of the power used by main suppliers of Goldwind for producing Goldwind products being green power throughout the year. In addition, we support the development of communities where we carry out businesses, and use our business strengths and resources to engage in social welfare activities. Beijing Public Welfare Foundation has been professionally managing and supporting our public welfare work in the areas of education, poverty alleviation, and environmental protection.

The concept of sustainable development has become a global consensus and will profoundly influence and guide the business development of enterprises. We are keenly aware that the core of sustainable development is to meet the current development needs of mankind while leaving some space for the long-term development of future generations. In 2023, Goldwind employees will uphold the mission of Innovating for a Brighter Tomorrow. With the power of technology and our strong belief and perseverance, we hope to make wind power a safer, more reliable, and greener new energy, thus contributing to the global energy transition and the fight against climate change. The Company will also follow the United Nations Global Sustainable Development Goals (SDGs) and the Ten Principles of the United Nations Global Compact to deeply integrate the concept of sustainable development into our daily operations. We will join hands with stakeholders to promote the sustainable development of global economy!

# 01

# About Us

# Company Profile

Xinjiang Goldwind Science & Technology Co., Ltd. was founded in Urumqi, Xinjiang, China in 1998, and was restructured into a limited company in 2001. The Company was listed in Shenzhen Stock Exchange (SZSE: 002202) in December 2007, and was listed in Hong Kong Stock Exchange (HKEx: 02208) in October 2010.

We are mainly engaged in the development and manufacture of wind power equipment, wind farm investment and development, wind farm operation and maintenance, water utility-related services, and other businesses. In addition to high-quality wind turbines, we also provide wind power-related services and integrated solutions for wind farm investment and development. With our extensive experience in manufacturing wind turbines and building wind farms, we can meet the needs of all clients well throughout the whole wind power value chain.

Goldwind is committed to promoting energy transition, bringing affordable, reliable, and sustainable energy to the world, and building a "sustainable and better" future. Since its establishment, Goldwind has experienced and witnessed the vigorous development of renewable energy industry in China. And it has taken root in the global market with its comprehensive and in-depth capabilities of internationalization. Goldwind's businesses cover 6 continents and 38 countries, with 11,200 employees worldwide.

By the end of 2022, Goldwind has achieved more than 47,000 wind turbines in operation all over the world, and global cumulative installed capacity over 97 GW. The annual global newly installed capacity is 12.7 GW, ranking the 1st in the world. The annual domestic newly installed capacity is 11.36 GW, and its market share has been the 1st in China for 12 consecutive years[1].

**RMB 136.8 billion**
Total assets

**97 GW**
Cumulative installed capacity globally

**No. 1**
Ranking of market share in China

**11,200**
Total number of employees worldwide

**12.7 GW**
Newly installed capacity globally

**No. 1**
Ranking of global newly installed capacity

[1] Data from Chinese Wind Energy Association(CWEA), Bloomberg New Energy Finance(BNEF) related statistics.

# Our Business
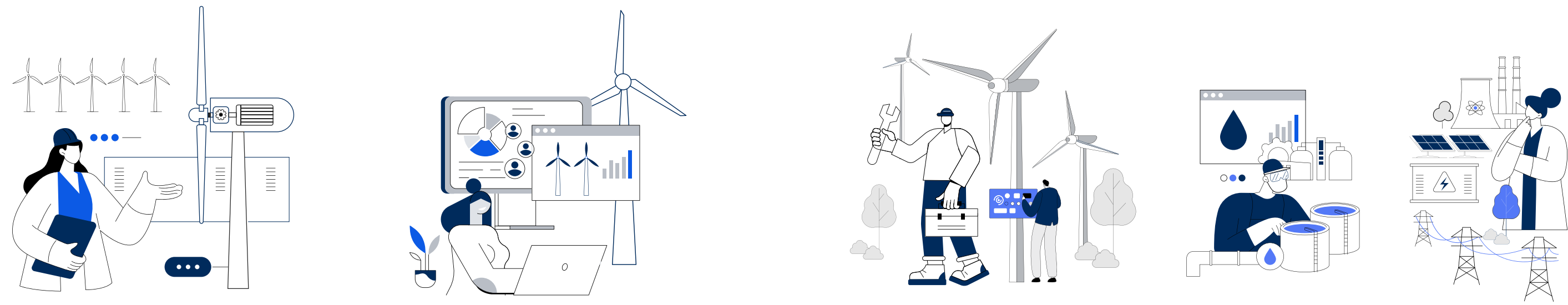


### R&D and manufacturing of wind turbines

Goldwind adheres to the concept of innovation-driven development. With the help of our medium-speed permanent magnet and permanent magnet direct drive technologies, we have accelerated the technological innovations of our products, and enriched the types of wind turbine platforms, so as to cover a wider variety of usage scenarios. The Company's wind turbines are highly reliable, low-cost, and grid-friendly. They can be applied to many usage scenarios, no matter it's centralized or distributed, regular-altitude or high-altitude, large-base or offshore.

### 2,888
Annual sold of wind turbine

### 13,871 MW
Annual capacity sold

### Wind farm investment and development

Goldwind has established a clean energy development system focusing on wind power for both domestic and international markets, and invested in the construction of its own wind farms.

### 1,744.8 MW
Newly installed equity-linked and grid-connected capacity in 2022

### 7,078.4 MW
Cumulative installed equity-linked and grid-connected capacity globally

### 2,456 hours
Domestic average generation utilization hours of wind turbines

### 143.8 100 million kWh
Global on-grid electricity consolidated statements

### Wind power operation and maintenance services

Goldwind develops EPC models that provide one-stop, full-life-cycle services for wind power projects. And the Company also provides intelligent solutions of operation and maintenance services, covering the entire life-cycle of wind turbines for clients and the industry regarding the large-scale and high-quality development of stock assets. The Company focuses on the value chain of wind energy investment and continues to improve the efficiency of safe and reliable asset operations through digitalization, technologies, and model innovations.

### 18,494.3 MW
Size of wind farm asset management services

### 28 GW
Capacity of after-sales and O&M services

### Water utility-related services

The Company has set up the Goldwind Environmental Science & Technology Co., Ltd. to expand its clean water industry chain. It specializes in investment, construction, operation, and technological innovations related to water utility projects, covering municipal water supply, municipal sewage treatment, industrial sewage treatment, reuse of recycled water, and other fields.

### 66
Number of companies for water-related services

### 2.84 million tons/day
Cumulative operating agreement size

### Other businesses

The Company has developed core wind power technologies such as distributed energy resources, integrated energy supply, advanced energy storage technology, and smart and digital management, and provides diversified energy products and solutions in terms of power grid, power source, power load, power storage, and power control.

### 159.6 100 million kWh
Contract capacity of electricity sales business

# Corporate Strategy and Culture

Goldwind undertakes the mission of Innovating for a Brighter Tomorrow and is committed to becoming a globally trusted strategic partner in clean energy. During China's 14th Five-Year Plan period, Goldwind will continue to adhere to the concept of high-quality development, keep pace with the times, and focus closely on empowering China's "30/60" dual carbon goals. The Company will also continue to promote technological innovation in wind power and peripheral product solutions, lead the balanced development of the industry chain, and boost China's zero-carbon development. It will continue to improve quality and efficiency and maintain steady growth to empower the realization of the zero-carbon goals.

**Mission** | Innovating for a Brighter Tomorrow

**Vision** | Being a global leader in clean energy, energy conservation and environmental protection solutions

## The concept of high-quality business development

Be client-centered and create values for clients.

Develop core competitiveness globally through innovation; pursue innovation in technologies, product solutions, business models, and management; contribute to the development of the new energy industry as a market leader.

Pursue lean management, give priority to quality, and improve operational efficiency and profitability by building a team of high-quality talents.

Operate in compliance, control the balance between efficiency and risk, be honest and trustworthy, and adhere to the spirit of contracts.

## Goldwind's strategic pursuit

Adhere to the core business of wind power equipment manufacturing and the dual-carbon compliance solutions.

Adhere to the concept of high-quality, large-scale, green and low-carbon development.

Adhere to the innovation-driven corporate specialization, digitalization and intelligent development initiatives.

Adhere to the business philosophy of efficient internal and external collaboration and ecological development.

Adhere to the philosophy of sustainable development featuring entrepreneur-oriented approach of efficient working and healthy living.

## Core values

**Reverence for nature:** Focusing on a bigger picture, we promote the sustainable development of the Company and the industrial chains through scientific approaches and from a long-term perspective.

**Facilitation of clients' success:** Goldwind stands in the shoes of clients, gains insight into clients' real needs, responds to clients' demands quickly, and provides personalized products and services for clients. We help clients maximize their sustainable values, and win long-term respect and trust from clients.

**Leading the innovation:** Innovation is the core driving force behind the development of Goldwind. Goldwind pursues innovation-driven growth and continuously innovates its theories, policies, technologies, culture, and other aspects in an all-around way. Goldwind maintains vigorous creativity and curiosity, actively explores new businesses and business models, and dares to blaze trails with open-mindedness.

**Legal compliance:** Goldwind operates in a transparent and legally compliant manner. It abides by the local laws and regulations, respects the local customs and culture, and integrates itself into the local environment where our partners and clients are located. We maintain an awareness of legal compliance, fulfill our responsibilities, and strictly implement company policies. We honor our commitments and keep our promises.

**Healthy and long-term development:** Company health is an important basis for the sustainable development of Goldwind. Only a healthy organization and healthy employees can bring about the long-term sustainable development of the enterprise.

# Major Awards and Honors

| Fortune China 500 Company | New Entity Enterprises Top 100 | China Energy Enterprise (Group) Top 500 |
|---|---|---|
| fortunechina.com | China Enterprise Evaluation Association | China Energy News, China Institute of Energy Economics Research |
| Research Report on Carbon Neutral Contribution of Chinese Enterprises and Top 50 List | Forbes China Sustainable Development Industrial Enterprises Top 50 | China Digital Transformation Top 50 |
| China Energy News, Institute for Carbon Peak and Carbon Neutrality, Tsinghua University, and China Institute of Energy Economics Research | Forbes China | Harvard Business Review, Institute for Global Industry, Tsinghua University |
| GWH252-16 MW offshore wind turbine: Top 10 Most Important Products of National Interest in 2022 | GWH191-4.0 MW wind turbine: Best Wind Turbine up to 5.6 MW, Gold Prize | GWH191-6.7 MW wind turbine: Best Wind Turbine 5.6 MW Plus, Silver Prize |
| State-owned Assets Supervision and Administration Commission of the State Council | Windpower Monthly | Windpower Monthly |
| Goldwind medium-speed permanent magnet drivetrain: Top Drivetrains, Silver Prize | Award for China Electric Power Quality Projects and Award for China Electric Power Small and Medium Quality Project | 2022 IEC 1906 Award |
| Windpower Monthly | China Electric Power Construction Association | International Electrotechnical Commission |
| Listed among the First Batch of National Popular Science Education Bases | New Fortune Top 50 Best Listed Companies | Best Investor Relations Award for Listed Companies in China |
| China Association for Science and Technology | New Fortune | Securities Times |

# 02

# Sustainable Development Management

Goldwind integrates the concept of sustainable development into the strategic culture and operation management process, explores and establishes a sustainable development management model with Goldwind characteristics, and promotes the close integration of sustainable development and its businesses. Goldwind carries out sustainable development strategic planning and builds an organizational structure for sustainable development. And we continue to expand sustainable development capacity, strengthen employee awareness, and promote the implementation of sustainable development company-wide.

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Sustainable Development Management | Honest and Compliant Operations | Green and Environment-friendly Operations | Sustainable Industry Chain | Fair and Sound Working Environment | Harmonious Community Relations

# Sustainable Development Management Structure

Goldwind attaches great importance to the construction of a sustainable development organization system. It aims to build a clear and well-defined sustainable development management structure for resource management and allocation, systematic governance within the company, and sustainable business development.

- The Board of Directors, as the highest decision-making and responsible body for Goldwind's sustainable development issues, is responsible for supervising and determining the overall sustainable development policies and related major issues.

- The Sustainable Development Management Committee manages various issues related to sustainable development and reports regularly to the Board of Directors. The committee is composed of executive directors and some company executives. Chairman Wu Gang is the chair of the committee. Since its establishment three years ago, the Committee has promoted the implementation of key projects focusing on Goldwind's sustainable development strategic planning, involving integrity management, green operation, low-carbon management, circular economy, social responsibility management along the supply chain, employee rights, and other aspects. The Company's sustainable development capacity has steadily improved.

- In 2022, the Company established the Sustainable Development Management Department, which is composed of professionals in sustainable development and carbon management. As the auxiliary of the Sustainable Development Committee, it is responsible for sustainable development strategic planning and capacity building, disclosure and communication of sustainable development information, and carbon management.
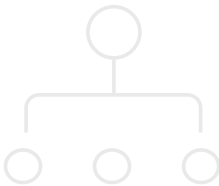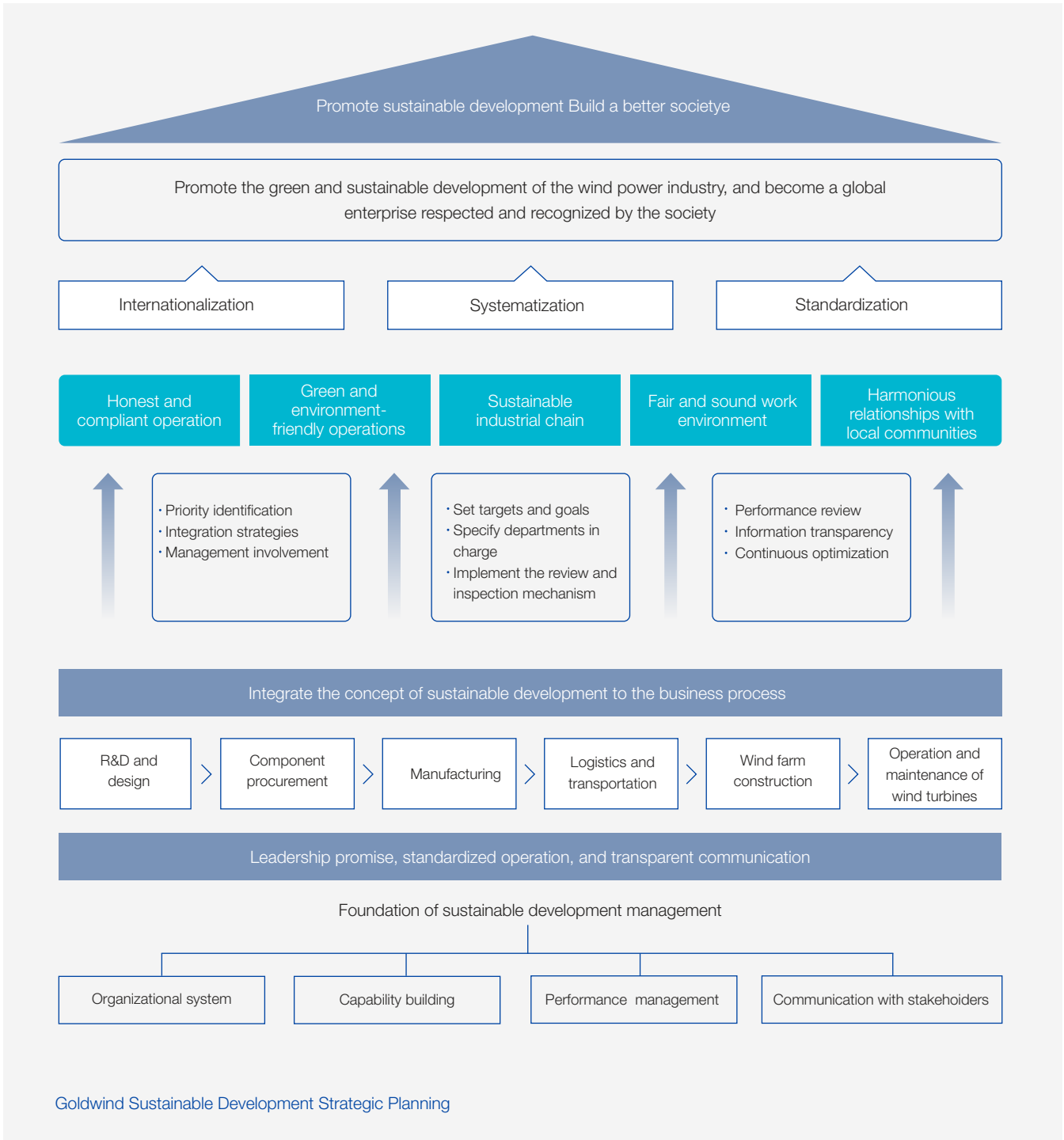
In 2022, the Board of Directors listened to the summary of the previous year's sustainable development work of the Company, reviewed and approved the 2022 sustainable development plan, and determined the focus and direction of future work. Goldwind held three sustainable development committee meetings in 2022 to review the work progress of key projects such as sustainable development management, carbon emission reduction and carbon neutrality, waste management, packaging recycling, social responsibility management along the supply chain, and employee health.

# Sustainable Development Strategic Planning

Goldwind plans the sustainable development strategies around five major fields: honest and compliant operations, green and environment-friendly operations, sustainable industry chain, fair and sound working environment, and harmonious community relations. The Company identifies important issues of sustainable development to set up sustainable development goals and action plans.



Promote sustainable development Build a better societye

Promote the green and sustainable development of the wind power industry, and become a global enterprise respected and recognized by the society

Internationalization | Systematization | Standardization

| Honest and compliant operation | Green and environment-friendly operations | Sustainable industrial chain | Fair and sound work environment | Harmonious relationships with local communities |

- · Priority identification
- · Integration strategies
- · Management involvement

- · Set targets and goals
- · Specify departments in charge
- · Implement the review and inspection mechanism

- · Performance review
- · Information transparency
- · Continuous optimization

Integrate the concept of sustainable development to the business process

R&D and design > Component procurement > Manufacturing > Logistics and transportation > Wind farm construction > Operation and maintenance of wind turbines

Leadership promise, standardized operation, and transparent communication

Foundation of sustainable development management

Organizational system | Capability building | Performance management | Communication with stakehoiders

Goldwind Sustainable Development Strategic Planning

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Sustainable Development Management   Honest and Compliant Operations   Green and Environment-friendly Operations   Sustainable Industry Chain   Fair and Sound Working Environment   Harmonious Community Relations

| Fields of work | Sustainable development goals | |
| --- | --- | --- |
| **Honest and compliant operations** | Adhere to the concept of "honest and compliant operations", and continuously improve the corporate governance and compliance management system to further enhance the level of governance. Carry out in-depth anti-corruption work, continuously optimize the anti-corruption supervision, inspection and restriction mechanisms, and create a culture of integrity, self-discipline and compliant operation, so as to ensure the healthy development of the Company. | • Continuously improve the corporate governance and compliance management system and improve the level of corporate governance.<br><br>• Foster a culture of integrity, self-discipline and compliance with the law. |
| **Green and environment-friendly operations** | In line with the corporate mission, further strengthen the green and environment-friendly features of a wind power company, strengthening our environment-friendly operations, reducing costs and increasing efficiency while securing the sustainable development of the Company. Continue to leverage the advantages of wind power in reducing greenhouse gas emissions in an effort to become a pioneering enterprise in combating climate change in China. | • By 2025, the greenhouse gas emissions per RMB 10k revenue should be 25% lower than that in 2020.<br><br>• By 2025, the hazardous waste per MW generated by the wind turbines should be 20% lower than that in 2020.<br><br>• By 2025, the water density in production and operation should be 15% lower than that in 2020.<br><br>• Starting from 2022, carbon neutrality at the operational level (Scope 1 and Scope 2) should be achieved. |
| **Sustainable industry chain** | Lead upstream and downstream enterprises to fulfill their social responsibilities, and prevent supply risks caused by environmental and labor violations of suppliers. Meanwhile, focus on the social responsibility in R&D and design, manufacturing, transportation, and operation and maintenance of wind turbines. Strengthen the synergy and sustainable development of the industry chain, and lead the sustainable transition and upgrading of the industry. | • By 2023, the social responsibility audit rate of major suppliers of wind turbine components (manufacturing category) should reach 100%.<br><br>• By 2025, the main suppliers of Goldwind should use 100% of green power for producing Goldwind products.<br><br>• By 2040, 100% of wind turbines should be able to be recycled and reused. |
| **Fair and sound working environment** | Comply with national and regional laws and implement the Ten Principles of the Global Compact; follow the core provisions of international labor standards to continuously standardize the employment and employee rights management system; prevent discrimination, child labor, and forced labor; carry out occupational health and safety management; create a diverse, equal and inclusive work environment; focus on employee development, care for employees' lives and improve employee cohesion and satisfaction. | • Build a diverse, equitable and inclusive internal work environment.<br><br>• By 2023, health management programs should cover all our employees. |
| **Harmonious community relations** | Respect and protect the legitimate rights and interests of communities and other related parties for mutual benefit and common development, so as to jointly build a fair and harmonious development environment. | • By 2023, the number of Goldwind volunteers should reach 5,000, with approximately 6,000 hours of volunteer work.<br><br>• By 2025, at least 10 youth science and technology practicing bases should be built. |

Based on these five major fields of sustainable development strategic planning, the Company identifies priorities and breaks them down into sustainable development projects and targets, and gradually promotes their implementation within the company. In 2022, under the supervision and guidance of the Board of Directors and the Sustainable Development Committee, the Company managed to deploy internal and external resources to promote sustainable development projects and improve sustainable development management capacity.

In 2022, the Company achieved carbon neutral at the operational level (Scope 1 and Scope 2) through the purchased of carbon offsets on the basis of carried out energy conservation, consumption reduction and used green electricity. And it continued to promote the optimized management of hazardous waste, and as a result, the emission intensity of hazardous waste decreased by 5.6% compared with the previous year. In terms of building a sustainable industry chain, the Company continues to carry out in-depth social responsibility management along the supply chain. A total of 215 suppliers received independent third-party social responsibility audits throughout the year, accounting for 85% of the total number of major wind turbine component suppliers (manufacturing category) of the Company. 46% of the power used by main suppliers of Goldwind for producing Goldwind products was green power. At the same time, the Company continued to carry out research and development on the recycling of wind turbine blades, striving to achieve 100% recycling and reuse of wind turbines. Goldwind tried its best to benefit the communities in the business operation process and established three science education and practice bases for teenagers in Beijing, Xinjiang, and Shandong. The Company encouraged and mobilized employees to participate in voluntary public welfare activities, with 3,397 volunteers and 5,840 hours of volunteer service throughout the year.

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# Capacity Building for Sustainable Development

Goldwind publishes sustainable development-related content on its official website, official WeChat account, and internal Goldwind People newsletter from time to time. It also has online training courses, on-site training activities, etc. The Company aims to comprehensively introduce international sustainable development trends, promote the Company's sustainable development concept, introduce the latest achievements, explain sustainable development knowledge, and deepen employees' understanding and awareness of sustainable development while improving their capabilities.

In 2022, Goldwind made social responsibility training as mandatory part of new employee induction training. The coverage among incoming employees in 2022 was 100%. Sustainable development training was provided to internal senior management, covering the United Nations Sustainable Development Goals (SDGs), Ten Principles of the Global Compact, national standards for social responsibility management systems, responses to climate change and carbon neutrality, among others. Goldwind has compiled the Goldwind SA8000 Social Accountability Standard Knowledge Manual and provides special training for relevant personnel.

**100**%

Coverage of social responsibility among incoming employees in 2022

# Communication with Stakeholders

Stakeholders' understanding, recognition and support of the Company's efforts in social responsibility and sustainable development serve as the basis for the Company's continuous and effective promotion of the relevant work. In recent years, as sustainable development and ESG management have drawn attention from the whole society, the Company has continuously communicated with its stakeholders on its sustainable development efforts. The Company released Sustainability Reports, engaged itself in external interviews and market research, participated in conferences and forums on sustainable development, and carried out global sustainable energy cooperation and exchanges, so as to promote the information about the Company's fulfillment of social responsibility and commitment to sustainable development, and to obtain feedback from stakeholders on their expectations and suggestions, thereby continuously optimizing sustainable development efforts. In 2022, Goldwind further built trust with institutional investors, customers, financing institutions and other stakeholders by communicating candidly with them on sustainable development management in depth; the Company organized and participated in themed activities such as "carbon neutrality", communicated and cooperated with stakeholders in key areas such as carbon peak and neutrality goals and climate change to enhance mutual understanding and promote the sustainable development of the Company and the industry.



Ma Jinru, Vice President and Secretary of the Board, attended the High-end Roundtable ESG & Carbon Neutral Investment at the United Nations Courtyard

| Stakeholders | Major Concerns or Expectations | Responses |
|---|---|---|
| Shareholders and creditors | Sustainable profitability<br>Regulation of corporate governance<br>Disclosure of business information<br>Reward shareholders<br>Enhance the profitability | Enhance business management capacity<br>Strengthen management of debt risk<br>Optimize internal compliance management system<br>Timely disclosure of information<br>Organize shareholders' meeting<br>Reasonable profit return |
| Clients | Honest contract performance and integrity<br>High-quality products<br>Excellent services<br>Responses to client requests | Strictly implement requirements set forth in contracts<br>Strengthen product quality management<br>Offer differentiated, high-quality products<br>Offer excellent services<br>Improve the procedure to handle client complaints<br>Protect client privacy |
| Employees | Protection of legal rights and interests<br>Salary and welfare guarantee<br>Health and safety protection<br>Development platform building | Fair and standard employment<br>Appropriate salary and social insurance payments in a timely manner<br>Improve talent development channels<br>Offer competitive salaries<br>Offer diversified welfare<br>Offer healthy and safe work environment |
| Suppliers and other partners | Transparent procurement<br>Honest contract performance and integrity<br>Win-win cooperation | Open and fair procurement<br>Timely payment for goods<br>Support the sound development of suppliers<br>Improve supplier quality and technology |
| Community | Protection of local environment<br>Support of community development<br>Charity and welfare | Take the actions of energy conservation and emission reduction<br>Protect ecological environment<br>Support public affairs of the community<br>Carry out charity activities within the community |
| Government | Follow laws and regulations<br>Drive local economic development<br>Pay taxes according to law | Conform to laws and regulations<br>Pay taxes according to law<br>Offer job opportunities<br>Drive development of related industries |
| Financial institutions, R&D institutions, and the media | Common development<br>Information disclosure | Carry out strategic cooperation<br>Strengthen industry, university and research cooperation<br>Organize activities such as visit and meeting |

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# Materiality Assessment

Based on the business scope, expectations of internal and external stakeholders, and global sustainable development, with reference to domestic and international CSR standards, guidelines, initiatives and regulations related to the development of the wind power industry, the Company identified key topics that may affect the Company's creation of comprehensive economic, social and environmental values, and may influence stakeholders' evaluation of the company. After evaluation by stakeholders and reviews by the Company's Management, the Company developed a matrix of key topics.
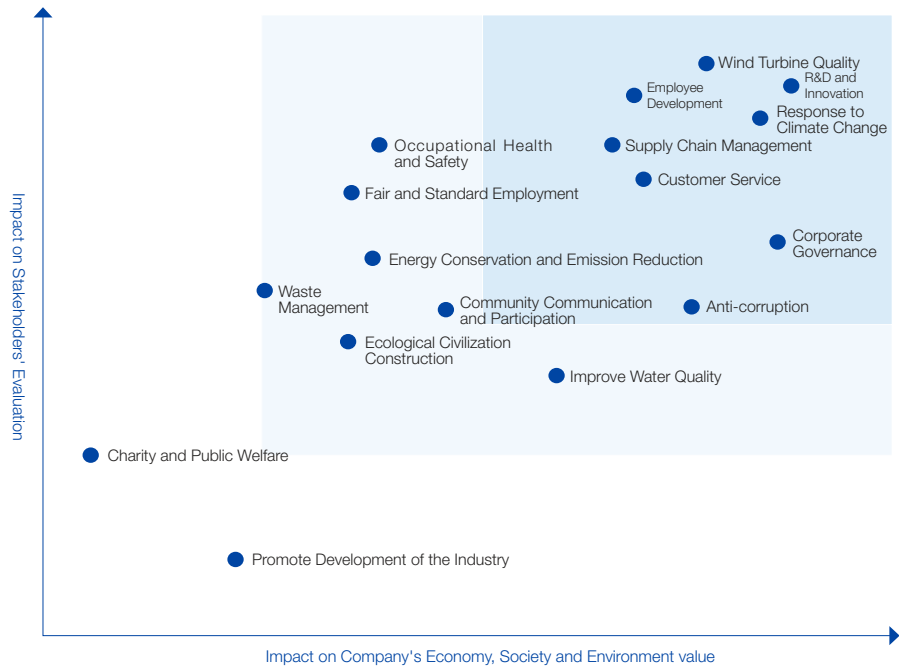


**Matrix for Key Topics of Goldwind**

# Sustainable Development Ratings and Recognition

In 2022, Goldwind's sustainable development practices and achievements continued to be widely recognized by organizations, media, and rating agencies at home and abroad.

## Sustainable development-related ratings

| | | |
|---|---|---|
| MSCI ESG Ratings | **A** | |
| CDP | **B** | |
| Sustainalytics ESG Ratings | **26.8** | |
| FTSE Russell ESG Ratings | **3.4** | |
| Sustainability Rating of Hong Kong Quality Assurance Agency (HKQAA) | **A+** | |
| SynTao Green Finance ESG Ratings | **B+** | |
| SusallWave ESG Ratings | **A** | |

# Sustainable development-related honors and awards

| Honors and Awards | Awarded by |
|---|---|
| 2022 Top 100 ESG A-share Companies | Securities Times |
| 2022 Best ESG Disclosure Award, Best ESG Practice Award | New Fortune |
| Listed in the GoldenBee 2022 Outstanding CSR Report and won the Growing Enterprise Award | China Sustainability Tribune, GoldenBee Think Tank |
| Best Environmental (E) Responsibility Award of 2022 China Enterprise ESG Golden Responsibility Award | Sina Finance |
| Leap Forward Award for Excellent Enterprise in Environmental Information Disclosure in 2022 | CDP (Carbon Disclosure Project) |

# Participation in Sustainable Development of the Industry

Goldwind recognizes that sustainable development cannot be achieved without the sincere cooperation of all parties involved. The Company has long been committed to participating in the sustainable development of the industry. It works with relevant parties in the value chain to jointly address many challenges and opportunities in sustainable development such as climate change.

| United Nations Global Compact (UNGC) | The Company joined the United Nations Global Compact (UNGC) in April 2021, undertaking to support the Ten Principles of the Global Compact on human rights, labor, environment and anti-corruption. We are committed to making the Global Compact and its principles become part of our strategy, culture and daily operations, and actively participating in collaborative projects that facilitate the achievement of the United Nations Sustainable Development Goals. |
|---|---|
| Global Alliance for Sustainable Energy | In 2021, together with 17 influential utilities, global players in the wind power and solar PV industries, sector associations and innovation partners, the Company jointly established the Global Alliance for Sustainable Energy to launch more strategic and ambitious sustainability development initiatives, thus taking the lead in sustainable development of the global renewable energy industry with a focus on collaboration and innovation. |
| Global Wind Energy Manifesto for COP27 | The Manifesto calls on governments to take massive actions over the next decade to scale up wind and renewable energy to tackle climate change and limit the global average temperature increase to 1.5 °C. Goldwind is one of the initiators of the Manifesto. |
| China ESG Leaders Association | China ESG Leaders Association, initiated by Sina Finance in 2019 and co-sponsored by Chinese enterprises with excellent performance in environmental, social and corporate governance (ESG), is a business organization joined by leading enterprises. Members of the Association are committed to jointly promoting and practicing values including sustainable development, responsible investment and ESG, improving the overall ESG management efficiency of enterprises, leading the best ESG practices in the industry, and creating the competitive advantages of Chinese enterprises in the field of ESG. |
| "Mission Innovation" and "Green Powered Future" Initiatives | By joining the "Mission Innovation" and "Green Powered Future" initiatives in 2021, the Company has been committed to continuously facilitating the research and engineering promotion of wind power generation technologies, thus contributing to the achievement of 100% renewable energy in different geographical and climatic regions of the world. |

03

# Honest and Compliant Operations

Goldwind operates with honesty and compliance, steadily improves governance capabilities, and creates value for shareholders and society.

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Sustainable Development Management    **Honest and Compliant Operations**    Green and Environment-friendly Operations    Sustainable Industry Chain    Fair and Sound Working Environment    Harmonious Community Relations

# Corporate Governance

Goldwind strictly abides by laws and regulations and standardized documents such as the *Corporate Law*, *Securities Law*, *Governance Standards of Listed Companies*, *Corporate Governance Codes, Stock Listing Rules of the Shenzhen Stock Exchange*, and *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong*, and establishes an operating mechanism comprising the Shareholders' Meeting, the Board of Directors, the Board of Supervisors, and the management team. Under the Board of Directors, there are Audit Committee, Nominating Committee, Compensation and Assessment Committee, and Strategic Decision Committee, and each specializes in its respective field to ensure the long-term and steady development of the Company.

The Shareholders' Meeting has ultimate authority. The Company convenes Shareholders' Meetings strictly in accordance with the regulations and requirements of the *Rules for the Shareholders' Meetings of Listed Companies, Articles of Association*, and *the Rules of Procedure of Shareholders' Meetings.*

The Board of Directors consists of nine directors, including three executive directors, three non-executive directors, and three independent non-executive directors. One of the directors is female, accounting for 11% of the total number of board members. The Board of Directors gives full play to the professional capabilities and experience of directors and adheres to the communication and decision-making mechanism with "integrating collective wisdom and making democratic decisions" as its core. Directors fully discuss all proposals and share their views, inform the Company's Management of the potential risks and opportunities in the Company's operations and investment activities, and put forward reasonable suggestions. The Board of Directors is responsible for convening Shareholders' Meetings, implementing the resolutions of the Shareholders' Meetings, and reviewing the Company's purchase and sale of major assets, external investment, external guarantee and other matters within the scope authorized by the Shareholders' Meetings. It seeks the opinions of each independent director regarding major issues such as capital operations, profit distribution, affiliated transactions, and internal control self-assessment reports.

The Board of Supervisors, the Company's permanent supervisory body, examines the Company's financial status according to law, and supervises the Company's internal control, risk control, information disclosure, and review of major issues. It is responsible for supervising the Board of Directors and its members. The Board of Supervisors also oversees the Company's senior managers such as the President, Vice President, and Chief Financial Officer to prevent them from abusing their powers or infringing on the legitimate rights and interests of shareholders, the Company, and employees.

The Shareholders' Meetings, the Board of Directors, the Board of Supervisors, and the Special Committee of the Board are responsible for reviewing major issues related to corporate development.

In 2022, the Company held three Shareholders' Meetings and reviewed 22 proposals. The Company held 11 meetings of the Board of Directors and reviewed 50 proposals including annual reports and profit distribution plans. It also held five meetings of the Audit Committee, three meetings of the Nomination Committee, one meeting of the Strategic Decision Committee, and three meetings of the Compensation and Assessment Committee.

Please refer to the Corporate Governance section of the 2022 Annual Report (A-shares: 002202) or the Corporate Governance Report section (H-shares: 02208) of Xinjiang Goldwind Science & Technology Co., Ltd. for detailed information about the Company's governance.

**2022**

## 3

Shareholders' Meetings

## 22 proposals

Reviewed on shareholders' meetings

## 11

Meetings of the Board of Directors

# Compliance Management

It fulfills the obligations of a listed company, continuously improves its compliance system with daily consultations, major issue assessments, compliance training and inspection, accepting feedback and suggestions to improve itself and enhance the management of compliance. In 2022, based on the requirements of laws, regulations, and listing rules, the Company continued to improve its compliance management systems by revising the *Articles of Association* and the *Rules of Procedure of Shareholders' Meetings*. The Company has also optimized the follow-up mechanism for major transactions and major issues. It tracks the progress of major projects and major compliance matters such as connected transactions, external guarantees, asset acquisition and disposal, and major litigation and arbitration. And it fulfills its review procedures and information disclosure obligations in a timely manner. In addition, the Company has updated the *Compliance Management Manual* based on its business characteristics and high-frequency transaction types, regulatory requirements of the Shenzhen Stock Exchange and Hong Kong Exchanges, and the Company's key compliance management policies. The Manual is useful for business departments to learn about compliance requirements and make compliant decisions. It helps improve the Company's overall awareness of compliance operations.

The Company continues to work on anti-monopoly, stamped document management, and compliance culture training. It pays attention to the risks of concentration of undertakings and monopolies that may be involved in joint ventures, mergers, and acquisitions, and provides anti-monopoly compliance risk reminders and compliance guidelines for related projects to prevent anti-monopoly compliance risks. It strengthens the compliance management of stamped documents and includes legal reviews in the approval process of such documents to control compliance risks. It creates a corporate compliance culture and organizes various online and offline compliance training to strengthen the compliance awareness of all employees, including investment compliance, bidding compliance, and labor compliance.

Goldwind abides by the principles and work standards of information disclosure, fulfills its information disclosure duties as a listed company, and maintains good communication with investors through multi-channel communication. The Company has established an efficient investor relationship management mechanism to protect shareholders' right to know, formulate dividend distribution policies and plans, and protect the interests of shareholders.

# Rights and Interests of Investors

## Information Disclosure

Goldwind always adheres to the principles of factual, accurate, complete, fair and timely disclosure, as well as strict disclosure with consistent information in both exchanges. The Company abides by the dual listing rules of the Shenzhen Stock Exchange and the Hong Kong Exchanges, continues to regulate and refine its information disclosure procedures, and constantly improves the quality of information disclosure, to ensure that investors of both exchanges can have fair access to corporate information and fully understand corporate operation and business condition in time and with better transparency. In 2022, the Company issued four regular reports, 70 A-share interim announcements, and 146 H-share announcements, among which 77 were in both Chinese and English. The Company has been awarded Class A (excellent) rating for six consecutive years in the annual information disclosure assessment by Shenzhen Stock Exchange.

**2022**

## 4

Issued regular reports

## 70

Issued A-share interim announcements

## 146

Issued H-share announcements

## 77

Issued H-share announcements by Chinese-English bilingual

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## Investor Relations

In 2022, Goldwind continued to deepen investor relations management and further strengthen communication with investors through comprehensive and systematic diversified communication channels. The Company pays attention to efficient communication, continuously optimizes communication quality, enriches communication content, and provides investors with high-quality services.

Facing the needs of different investors, the Company uses different methods to carry out multi-dimensional and in-depth communication. Throughout the year, the Company held four global performance conferences in Chinese and English to introduce the Company's operations to the investors both in China and around the world. The Company maintains good communication with investors through performance roadshows, active participation in industry investment summits, analyst meetings, the reception of visiting investors, and online reverse roadshows. In addition, the Company maintains an effective communication mechanism with its small and medium shareholders by regularly updating its official website, promptly answering the investor hotline, actively responding to investor emails, and maintaining 100% response on the Easy Interaction platform. Goldwind uses new media platforms to push the latest news about policies, the industry, and Goldwind businesses to investors, thus enhancing the transparency of the company in the market. In 2022, the Company received more than 3,000 visiting investors. In the era of responsible investment, Goldwind also actively responds to the communication demands of ESG investment institutions, focusing on improving the communication efficiency of ESG topics and the communication experience of investors.

2022

**3,000** person time

Received visiting investors
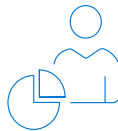
## Profits for Investors

The Company pays attention to the long-term and sustained profits and returns for investors. Through steady operation and scientific management, the Company continuously improves its profitability and rewards investors with good operating performance. For consecutive years, the Company has adopted favorable, stable cash dividend policies that allow investors to fully enjoy the benefit of the Company's development and its continuous earnings. In 2022, the Company's total revenue was RMB 46.437 billion. The net profit attributable to shareholders of the Company was RMB 2.383 billion. The average earnings per share was RMB 0.5203.

# Internal Control and Risk Management

The Company continues to improve internal control and risk management, and gradually develops a stable risk management structure and operation procedures to guarantee the Company's sustainable development.
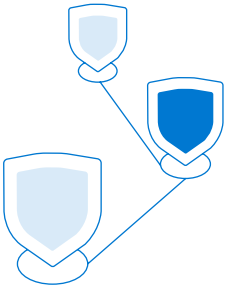
**In terms of risk management planning,** the Company follows its 2021-2023 risk management planning to make sure that various tasks are carried out in line with established milestones and schedules.
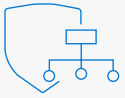
**In terms of building a risk control system,** the Company continues to iterate process frameworks and business processes based on changes in the market and business environment so as to effectively prevent and control business risks.

**In terms of contract compliance reviews,** the Company improves its pre-event, in-process, and post-event management and control mechanism to strengthen the pre-event and in-process management of business risks.

**In terms of major risk management,** the Company pays attention to major risks, follows up on potential losses, and promotes the resolution of issues with major risks.

**In terms of risk culture construction,** the Company organizes Risk Compliance Month activities to introduce its compliance management requirements on anti-fraud, project procurement, EPC, bidding, information disclosure, finance, human resources, investment, etc., so as to enhance risk compliance awareness of all employees and promote compliant business operations.

**In terms of special risk management,** the Company carries out special risk management work to address the pain points of the business segment. The Company focuses on optimizing online processes and establishing milestone responsibility lists through special improvements. And the Company achieves efficiency improvements by systematically ensuring business compliance.

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# Anti-Corruption and Anti-Money Laundering

## *Anti-Corruption*

Under the guidance of the Audit Committee of the Board of Director, the Company has set up an independent Audit and Supervision Department to carry out anti-corruption work. It sets up anti-corruption behavior and ethical standards, and optimizes related supervision, inspection and restriction mechanisms, to continuously improve its anti-corruption system, and to create an environment where everyone is unable and unwilling to be corrupt, thus preventing the occurrence of corruption. In 2022, no legal proceedings related to company corruption occurred.

The Company formulates policy documents such as *Anti-bribery Regulations, Goldwind Professional Ethics and Code of Conduct, Dining & Entertainment Expenses Regulations,* and *Transparent Cooperation Agreement* to clarify the concept and types of bribery and corruption, anti-bribery and corruption management structure and responsibilities, absolute prohibitions, reporting and investigation of corruption cases, remedial measures of corruption cases, etc.

To respond to possible reports of corruption in a timely, fair, effective, and safe manner, the Company establishes reporting and investigation procedures, sets up channels such as telephone/email for complaints and reports, and arranges for dedicated personnel to operate and record the acceptance in time. If a complaint is reported, the Company will quickly inform the whistleblower and all personnel who have received the reported information that the matter has been accepted. It will also investigate with relevant departments and external experts, and proactively provide feedback to the reported person/whistleblower on the progress of the investigation. The investigation team will summarize the investigation results and report according to the nature of the case. And it will carry out follow-up penalties and remedial measures according to laws and regulations.

The Company encourages all employees and insiders to report violations of anti-corruption rules. It has published the telephone number and the email address for complaints and reports on its official website, office areas, and other places. It has also set up a letter box for stakeholders to report actual or suspected corruption.

## *Anti-Money Laundering*

Goldwind strictly abides by laws and regulations related to anti-money laundering and counter-terrorism financing, constantly improves internal systems and working mechanisms, and continuously strengthens control procedures and control measures. The Company comprehensively improves its risk prevention and control capacity related to anti-money laundering through monitoring capacity building and management, internal and external publicity and training, and other compliance building work.

The Company has revised the *Anti-Money Laundering and Counter-Terrorism Financing Management Measures* to clarify job responsibilities, internal and client management measures, evaluation and reward-penalty mechanisms, and other important content. Finance companies and relevant departments of Goldwind fulfill their anti-money laundering obligations according to the management measures and integrate anti-money laundering and counter-terrorism financing into their daily work.

In 2022, the Company issued the *Management Measures for Self-Assessment of Money Laundering and Terrorism Financing Risks*, which is used to guide the Company to identify anti-money laundering risk loopholes and weaknesses, allocate resources reasonably, and take effective risk control measures. The document clarifies the responsibilities and operating procedures of each department and requires at least one self-assessment every three years. It allows the Company to identify and assess its money laundering and terrorism financing risks based on the principles of comprehensiveness, objectivity, compatibility, and flexibility. The Company continuously carries out special training for personnel in relevant departments and positions to explain anti-money laundering concepts, regulations, management processes, etc., so as to ensure the effective implementation of relevant procedures and policies. During the reporting period, the Company had no money laundering-related litigation cases.

Hotline for anti-corruption reporting:

+86(0)10-67511888-1127

Email:

audit@goldwind.com.cn

Address:

Audit and Supervision Department, Goldwind Science & Technology Co., Ltd. No. 8 Boxing 1st Road, Economic & Technological Development Zone, Beijing

Post Code:

100176

In 2022, the Company carried out various and extensive special training activities to enhance the awareness of integrity and self-discipline of managers and employees. Throughout the year, the Company organized nine anti-bribery training sessions for personnel in high-risk positions, newly appointed management-level personnel, and newly recruited employees, covering 1,938 people. The Company organized a company-wide "declaration of conflict of interest" with a 100% reporting rate. The Company continued to enhance employees' integrity awareness across the company with activities such as "anti-bribery auctions", anti-corruption study visits for middle and senior management personnel.

# 04

# Green and Environment-friendly Operations

Facing the three major environmental crises of worsening environmental pollution, climate change and biodiversity loss, Goldwind adheres to low-carbon development, carries out environment-friendly operations and management, develops innovative practices, strengthens its green development capability, and reduces its own emissions and pollution, contributing to the low-carbon, sustainable development of China and the world.

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# Green Production and Operations

The Company has established and continuously improved the environmental management system, carried out in-depth work in energy and resource use, waste management, packaging and hazardous chemicals, and improved its green production capacity by optimizing the management system, deploying automated and digital production equipment, increasing the ration of renewable energy usage, innovating and exploring new processes.

## Utilization of Energy and Resources

Goldwind strictly complies with laws, regulations and standards related to the use of energy and resources. The business units for wind turbine R&D and manufacturing, wind farm investment and development, wind power operation and maintenance, and water business have all passed the ISO14001 certification. They identify and evaluate environmental factors regularly, implement measures for rectification and improvement, and continuously improve environmental management.

The main energy types used by the Company in the production and operations are electricity for office and production, gasoline for business vehicles, diesel for construction vehicles, natural gas and liquefied petroleum gas for staff catering, etc. Water is used mainly in scenarios such as office work and living, power plant construction, and water business. During power plant construction, only a small amount of water is used for dust control and plant watering. In water business, water is mainly used for pharmaceutical preparation and other processes.

### Amount and Density of Primary Energy and Resource Usage

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Total electricity consumption | 100 million kWh | 6.87 | 5.87 | 4.88 |
| The self-generated electricity consumption of wind and solar | 100 million kWh | 3.64 | 3.14 | 3.08 |
| Gasoline consumption | kL | 2,958.10 | 2,554.30 | 2,154.38 |
| Diesel consumption | kL | 1,648.69 | 1,651.56 | 2,555.19 |
| LPG consumption | ton | 160.36 | 107.77 | 21.92 |
| Natural gas consumption | $10 \text{ km}^3$ | 77.86 | 84.67 | 48.61 |
| Overall energy consumption per RMB 10k revenue[2] | ton of standard coal/ RMB 10k | 0.0198 | 0.0152[3] | 0.0118 |
| Water consumption | 10k tons | 82.85 | 76.85 | 47.82 |
| Water consumption per capita | ton/capita | 55.81 | 57.23 | 53.33 |
| Density of water consumption for production | ton/ thousand tons of water treatment capacity | 0.70 | 0.72 | 0.66 |
| Packaging material: wood | ton | 887.21 | 1,283.54 | 3,199.57 |
| Density of wood packaging usage | ton/pc | 0.28 | 0.45 | 0.67 |

[2] Refer to *GB/T2589-2020: General Principles for Calculation of the Comprehensive Energy Consumption* for the conversion of various energy forms to standard coal equivalents
[3] In 2021, the revenue changed due to retroactive adjustment, which affected the the change of overall energy consumption per RMB 10K revenue in 2021.

In 2022, the Company improved energy efficiency by optimizing energy management, deploying automated equipment and digital systems, etc.; to optimize energy management, the Company promoted the construction of energy management systems, set energy management rules, developed energy targets and implementation plans, regularly monitored energy performance, carry out energy evaluation, and strictly controlled energy consumption during production; and the Company built an energy management platform, and carried out online energy-related data monitoring and management. By the end of 2022, 8 factories of the Company had laid down energy management manuals and passed energy management system certifications. In the deployment of automated equipment and digital system, the Company integrated product management, design simulation, production execution, storage materials, equipment network, and other business information to build an intensive and flexible digital factory application system; during operations, autonomous assembly by robots, pulse automatic production line, unmanned production warehouse, and other equipment and operation modes are adopted to build a green manufacturing hardware system.

**8** factories

Passed ISO 50001 certification



Automation equipment in Goldwind assembly plant

The Company integrates the standards for constructing green buildings and green factories into the management processes of the projects featuring construction of new facilities, renovation of old facilities and expansion of existing facilities, and takes into consideration energy saving, environmental protection, safety, intelligence, and other factors when developing project plans and creating construction drawings, and strictly controls the quality of construction. We will strengthen management to improve the performance of new facilities in carbon emissions and environmental friendliness, water and soil conservation, and occupational health and safety. By the end of this reporting period, 4 factories of the Company, namely Beijing electric control factory, Hami factory, Zhangjiakou factory and Fuqing factory, have passed state-level green factory certification; 4 factories, namely Dafeng factory, Lingang Factory, Xingtai factory, and Jiuquan factory, have passed province-level green certification.

The Company actively deploys and increases clean and renewable energy use, and carries out planning according to local conditions by using its own experience and advantages in the energy sector. It has installed photovoltaic stations for 4 factories and added smart wind-powered micro-grid for 4 factory to utilize clean energy more efficiently.

**4** factories

Passed state-level green factory certification

**4** factories

Passed province-level green factory certification

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## Green, new energy sources empower manufacturing

Goldwind Wind Power Equipment Industrial Base, mainly producing large-sized wind turbines, nacelles, and rotors. For this manufacturing base, the Company installed wind power equipment, photovoltaic cells, and smart microgrid to build a network characterized by "three-side carbon reduction + one platform", aiming to control energy use and carbon emissions throughout the entire process by reducing carbon emissions at the consumption side, the supply side and the trading side through the digital energy and carbon management platform. Green electricity accounted for 95% of the power consumption in the park, and the total energy cost will be reduced by 15% to 20%, making the manufacturing process greener with less carbon emission.

Green electricity accounted for

# 95 %

of the power consumption in the park

The total energy cost was reduced by

# 15 % ~20 %



Goldwind's smart zero-carbon manufacturing base is installed with wind power equipment, rooftop photovoltaic cells and smart micro-grids

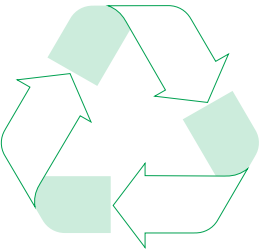This year, the Company implemented the scheme of reducing water use. Taking Beijing park, the headquarter of the Company, as an example, measures such as installing water-saving faucets and water-saving toilet flushing valves in echelon, planting water-saving and drought-tolerant greenery, adopting reasonable water-saving irrigation approaches, reusing water, as well as collecting, storing and using rainwater have been taken to improve water use efficiency and further reduce per capita domestic water consumption.



## Waste Recycling and Reuse

During wind turbine manufacturing, the Company generates relatively little waste, mainly comprising a small amount of hazardous waste and general solid waste. General solid waste mainly refers to waste generated during the construction of wind farms. Nitrogen oxides, sulfur oxides, and other air pollutants are barely produced during the Company's business and operation activities. The Company strictly abides by the *Law on the Prevention and Control of Environmental Pollution by Solid Wastes* and other laws and regulations, and properly handles all types of wastes in strict compliance with the principles of sorting and recycling and centralized storage and processing. For general solid waste, the Company practices centralized management and recycling or entrusts a third party for recycling and disposal.

Emissions of Primary General Solid Waste

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Non-hazardous waste-Construction waste | ton | 397.89 | 1,231.17 | 826.68 |

The Company actively promotes resource recycling during its production and operations. The Company has established a wind turbine recycling mechanism of wind turbines. Based on its R&D and manufacturing capability of wind turbines as well as its service branches throughout the country, it has built a network provides recycling and transportation of obsolete turbines; a closed loop in the recycling and refurbishment chain of obsolete turbines has formed, with enhanced recycling rate and refurbishment quality and with the establishment of sales channels for refurbished equipment.

The Company has a development center and a service center for Remanufacturing, and has established a complete process flow including old component recycling, transportation, cleaning and dismantling, technology development, process standards setting, testing, and large-scale application. The technologies and monitoring devices are provided to the upstream and downstream enterprises of the industrial chain to improve the utilization efficiency of existing wind turbines. Through the pattern of "recycling for reuse and recycling based on components", complete wind turbines and their core components are classified into several categories before being used in different scenarios to enhance their salvage value.

The Company has set up a firm with the qualification of recycling renewable resources. Through the three ways of reapplication of complete wind turbines, remanufacturing of components, and disposal of scrap, the Company has maximized its benefit from recycling resources in a lawful, environmentally-friendly way.

## Reapplication of complete wind turbines

Make full use of the salvage value of the wind turbines; and distribute them in high-energy-consumption industrial parks and towns, on training platforms, or in carbon-neutral parks.

## Remanufacturing of components

Remanufacture the core components of wind turbines, such as gearboxes and generators. These components will be recycled and used for replacement in post-service maintenance to maximize the salvage value and reduce the cost of the spare parts for customer service. For example, the Company actively promotes the dismantling and reuse of obsolete magnetic steel. Since 2015, about 1,800 tons of obsolete magnetic steel has been recycled, 640 tons of rare earth ore concentrate has been saved, and about 1,360 tons of new magnetic steel has been successfully reproduced. This has reduced the amount of rare earth needed and the exploitation quantity.

## Disposal of scrap

According to the principle of reduction, recycling, and no hazard for solid waste disposal, towers, cable, electrical components, structural parts, and blades have been recycled as far as possible to increase the salvage value and maximize the gains.

To recycle the pallets used in production of the nacelles, rotors and drive trains of wind turbines, the Company cooperates with the technical departments of the manufacturers to recycle pallets. The pallets used for the five major parts, namely nacelle structural member, electric teeth of drive train, bearing housing, casing and main shaft, are all recycled by the manufacturers. This improves the use efficiency of the materials used in production; the Company also cooperates with manufacturers to improve the processes of manufacturing wooden pallets such as hub and base, optimize the quality and size of pallets, reduce the use of wooden pallets and cut down material consumption.

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### Exploring an innovative solution for efficient recycling of wind turbine blades

The efficient recycling of waste wind turbine blades is a great challenge facing the industry. As the waste blades are mostly made of thermosetting resin matrix composite materials, the corresponding recycling process is complicated and the cost is high, so there is no ideal recycling method in scale at this moment. In 2022, the Company continued to explore the solution to recycling waste blades that focuses on both feasibility and economy, and attempted to build a complete, large-scale supporting industrial chain of waste blades following the stages of "local recycling → local crushing → powder screening and mixing → 3D printing → finished products". In the carbon-neutral smart park of the Company's headquarter in Beijing, waste blades were transformed into the raw materials for 3D printing to build a flower bed. The Company has realized large-scale reuse of waste blades with the help of 3D printing. Another advantage of this technology is that the Company is able to cooperate with construction projects around wind farms to archive the consumption and reproduction of the solid blade waste in the vicinity by using mobile 3D printing robots, which reduces the cost of long-distance transportation.
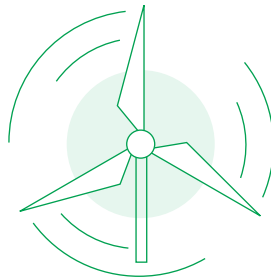
Waste blades were transformed into the raw materials for 3D printing to build a flower bed

The Company used obsolete blades for producing recyclable packaging to replace the currently used wooden disposable packaging, so as to facilitate packaging recycling and reduce wood consumption. In 2022, the Company made the main spar, auxiliary spar, and shear webs of blades into pallets and the cover plate of packaging crates in its pilot units; the dust was collected and used for laboratory research boards; residual materials were used on crushing boards and were added to packaging plywood or glulam piers. A total of 229 blades were recycled throughout the year in pilot units, realizing solid waste recycling.

## Packaging Materials

To reduce the use of packaging for large components of wind turbines, in 2022, the Company further reduced the plastic packaging weight per kilowatt of large components by applying hard packaging made of degradable plastic materials to the large components of the GWH V12 platform wind turbines and using packaging on partial components of other models. At the same time, the Company carried out the PE shrink film test on the outer packaging of the drivetrain. The shrink film has different self-bonding properties, flexibility, and scalability, which is not only low-carbon and environmentally-friendly, but also reduces costs.

## Hazardous Chemicals Management

The Company has formulated the *Hazardous Chemicals Management Rules* to specify the management responsibilities of hazardous chemicals, clarify the requirements of hazardous chemicals procurement, transportation, use, storage and waste treatment, and conduct training for relevant employees to enhance their disposal awareness and ability, protect employee safety and reduce environmental pollution.

Hazardous waste mainly includes organic resins and organic solvents, mineral oil and its containers; through each stage, the Company identifies the source of emissions, continues to optimize the process, and reduces the amount of hazardous waste produced.

Hydraulic oil is a dangerous chemical used in the manufacturing of the drivetrain of main unit of a wind turbine. The Company replaced the 208-liter steel drums for hydraulic oil with larger and lighter tonnage drums. In this way, the hydraulic oil storage requirements are met, and the amount of hazardous waste of a single power train was reduced from 120 kg to 20 kg, registering an 83% decline.

In terms of daily hazardous waste management, the Company has added and upgraded the temporary hazardous waste storage rooms of 35 wind farms, clarified the requirements for working with hazardous waste, and produced the label templates of temporary hazardous waste storage rooms and containers/packages.

In 2022, to further optimize chemical management, the Company formulated the *Guidelines for the Selection of Chemicals for Wind Turbine Generating Units*, which stipulated the classification, selection guidelines, identification, and substitution of harmful chemicals, and prevention measures against chemical hazards. It also clarifies the list of chemicals in use, the list of key controlled chemicals, and the list of toxic chemicals prohibited for wind turbines.

Hazardous waste ｜ Unit：ton

| 2020 | 2021 | 2022 |
|------|------|------|
| 103.74 | 73.24 | 73.95 |

Hazardous wastes generated per MW of WTG manufactured ｜ Unit：ton/MW

| 2020 | 2021 | 2022 |
|------|------|------|
| 0.0082 | 0.0071 | 0.0067 |

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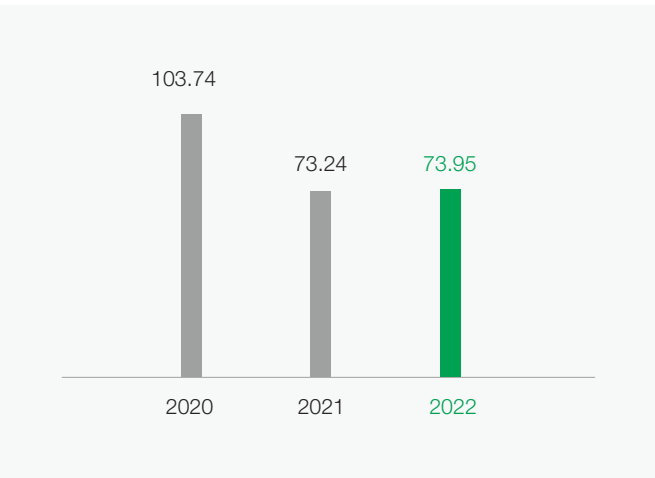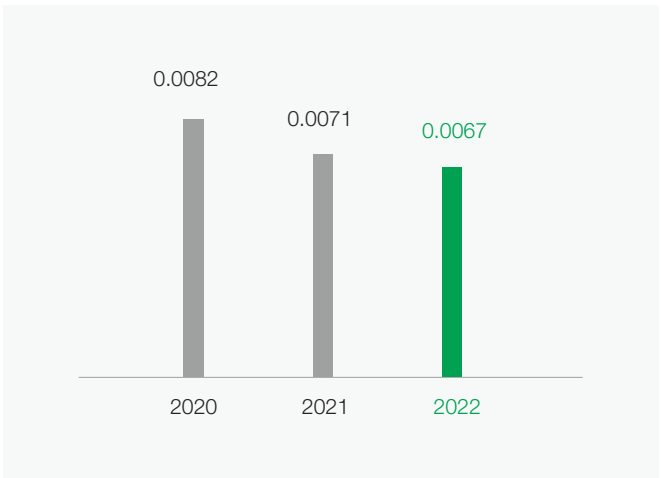
# Tackle Climate Change

Climate change is a huge global challenge that requires the joint response and prompt action of governments, businesses, and individuals. Goldwind has been continuously providing renewable energy products and services for the society. While helping to mitigate global climate change, Goldwind actively identifies the risks and opportunities brought by climate change to the Company, and continuously optimizes its operation and management.

The Company is committed to wind power, constantly improving the performance and power generation efficiency of wind turbines, providing clean, efficient and reliable renewable energy for the whole society, and contributing to the global low-carbon transition. By the end of 2022, the Company has installed over 97 GW of wind turbines worldwide, with an annual energy production about 210 billion kWh. Compared with coal-fired electricity, wind power helps reduce $CO_2$ emission per year by 178 million tons.

## 97 GW
Cumulative installed capacity globally

## 178 million tons
$CO_2$ emission reduction through wind power per year

## *Risks, Opportunities and Countermeasures*

The Company has included climate change in its "14th Five-Year Plan". Considering the global trend of low-carbon development and energy transformation as well as its own business operations, Goldwind has continued to innovate technologies related to wind power and relevant products and solutions, lead the balanced development of industrial chains, and build a clean energy supply system. At the same time, the Company has recognized that climate change is a long-term risk that cannot be avoided. Extreme temperatures, heavy rainfall, floods, fires, strong winds, and other extreme weather conditions caused by climate change are on the rise, which have a short, medium and long-term impact on the Company, and may affect the customer's operations and maintenance as well as the supply chain, thus affecting the Company's business.

Main risks and opportunities of climate change faced by the Company and countermeasures

| Type | Risk/Opportunity | Existing or potential impact on the Company | Countermeasure |
|---|---|---|---|
| Physical risk | Global climate change has made extreme weather and climate events, such as extreme temperatures, dust storms, heavy precipitation, floods, tropical cyclones, thunderstorms, and earthquakes such as wildfires, become more intense, frequent and last longer. | As such physical risks occur more frequently and become more intense, they will have an impact on the Company's product use, production and business operations. A mild consequence will be wind power equipment failure, resulting in reduced power transmission efficiency, and a serious consequence can be severe accidents such as wind turbine toppling, which will threaten the safety of personnel and property. | The Company has taken into account extreme weather and other climate-related risks in its product design and planning. Its wind turbine products can adapt to typhoon, thunderstorm, extreme temperatures, and other special environment; the Company has developed meteorological prediction and early warning information systems, and built meteorological early warning analysis models based on comprehensive meteorological disaster information, the running status and disaster-proof ability of wind turbines, historical data of disasters and other information, so that warnings can be made according to wind farm monitoring results, and advice on meteorological risks can be given throughout the entire operation cycle. This has improved wind turbine's ability to prevent disastrous weather conditions, and guaranteed equipment and personnel safety. |

| Type | Risk/Opportunity | Existing or potential impact on the Company | Countermeasure |
|---|---|---|---|
| Transition risks | Regulatory policies and marketing risks related to climate change and the transition to low-carbon development | Pressure from greenhouse gas reduction policies | The Company should continue reducing carbon emissions, cutting greenhouse gas emissions in Scope 1 and Scope 2 of the Company through energy conservation and consumption reduction, electric technology transformation, renewable energy adoption, direct green electricity purchase, etc. |
| | | The obligation to disclose environmental information | The Company should pay attention to the disclosure requirements of climate-related information, develop environmental information systems, and disclose climate and environment-related information timely according to regulations. |
| | | The prices of carbon quota and carbon offset products fluctuates strongly, and pressure is brought by higher prices. | The Company should analyze carbon prices and purchase appropriate carbon quota and carbon offset products at the right time to control carbon trading costs. |
| Transition opportunities | The government has issued new energy support policies to encourage the development of wind power, photovoltaic power and other industries | Wind power market space has been further opened up, which supports and guides the healthy and orderly development of the wind power industry | The Company should continue to strengthen its R&D and manufacturing of wind power equipment, improves the efficiency of power generation and reliability of wind turbines, and steps up smart services. It carries out joint innovation and integrated innovation with partners in the wind power business chain, and facilitates the development of Internet-based wind power platforms. |
| | The demand for green power such as wind power has increased in the production of high-power-consumption, high-emission industrial products | Affected by emission regulatory requirements, high-emission industries seek cooperation with new energy sources such as wind power and innovate production and operation models | The Company should strengthen the R&D and application of low-carbon technologies, develop customer-side comprehensive energy services, expand new energy application scenarios with wind power as the mainstay, and provide factories and industrial parks with low-carbon technologies and overall solutions based on green energy |
| | The government has established carbon trading market to control and reduce greenhouse gas emissions through market mechanisms and the industry coverage and trading entities have gradually expanded | Carbon trading market entities have increased demand for carbon emission allowances, which can improve corporate profits and cash flow to a certain extent | The Company should strengthen the management of carbon assets of its wind farms and actively participates in carbon trading. |
| | Customers give priority to clean energy and environment-friendly products and services. | Products with low carbon and environmental protection properties are favored by customers | The Company can strengthen its carbon management capacity, continue to carry out carbon emissions reduction, produce environment-friendly wind turbines, and establish a brand image of low carbon and environment friendliness. |

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## *Carbon Emissions Reduction and Carbon Neutrality*

In 2022, in order to strengthen carbon emission management, the Company consolidated the database, worked hard to meet emission reduction targets, carried out carbon market compliance, and achieved carbon neutrality in its annual operations.

During the reporting period, the Company launched the self-developed "Goldwind Carbon Account Platform", a system that can facilitate carbon footprint measurement, reporting, and verification. It can carry our high-quality analysis and evaluation on the changes in carbon emissions and carbon intensity of the entire Company, of every business unit and of different regions in real time, which has been conducive to tapping the benefit of carbon emission data management and improving the quality of carbon emission data management. With the support of the system, the Company conducted a comprehensive inspection on greenhouse gas emissions during all its operations in 2022.

Greenhouse gas emissions[4]

| Emission category | Emission amount | | |
|---|---|---|---|
| | 2022 | 2021 | 2020 |
| Scope 1 (ton of $CO_2$ equivalent) | 18,746.01 | 17,481.36 | 32,728.24 |
| Scope 2 (ton of $CO_2$ equivalent) | 1,251.27[5] | 203,087.68 | 152,302.43 |
| Overall emissions (ton of $CO_2$ equivalent) | 19,997.28 | 220,569.04 | 185,030.67 |
| Greenhouse gas emissions per RMB 10k revenue (ton of $CO_2$ equivalent/RMB 10k) | 0.0043 | 0.0433[6] | 0.0329 |

According to the relevant standards and guidelines of carbon emission management, the company gradually builds and improves the carbon emission management system internally, clarifies the responsibilities and authorities of carbon emission-related units, and decomposes the annual target to each business unit, so as to integrate carbon emission reduction work into daily operation and management in process. In 2022, the company has further sorted out the use of energy consumption, identified the factors affecting carbon emissions, and taped the potential of energy conservation and emission reduction; by installing distributed wind power/photovoltaic facilities, replacing new energy vehicles, reducing the use of fuel vehicles, carrying out lighting renovations, and precise aeration, paperless office and other measures the Company further reduced carbon emissions; the Copmany actively promoted the use of renewable energy, purchased green electricity, and increased the proportion of green electricity usage. In 2022, the Goldwind's total greenhouse gas emissions was 19,997.28 tons of carbon dioxide equivalent.

In 2022, on the basis of energy saving and consumption reduction and the use of green electricity, the company achieved "carbon neutrality" by purchasing carbon offsets, and fulfilled its commitment to carbon neutrality at the operational level (Scope 1 and Scope 2).

In 2022, Beijing Goldwind Science & Creation Wind Power Equipment Co., Ltd., a subsidiary of Goldwind, was included as a major entity in Beijing's carbon market and was demanded to fulfill the annual mandatory emission requirements. The Company fulfilled the requirements in November 2022 by purchasing carbon emission quota in Beijing's carbon market.

# Carbon Neutrality

Operational level (scope 1 and scope 2) in 2022

[4] The Company's greenhouse gas statistics are verified based on the *GHG Protocol Corporate Accounting and Reporting Standard* and *ISO14064-1: 2018 Greenhouse Gases – Part 1: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*. Technical documents such as the 2006 *IPCC Guidelines for National Greenhouse Gas Inventories* and *Guidelines for Accounting and Reporting of Greenhouse Gas Emissions by Enterprises – Power Generation Facilities (Revised in 2022)* were referred to when deciding on the emission factors.
[5] The reduction in carbon emissions in 2022 is due to the direct purchase of green electricity and the purchase of green electricity certificates.
[6] In 2021, the revenue changed due to retroactive adjustment, which affected the change of greenhouse gas emissions per RMB 10K revenue in 2021.

## Ecological Protection

According to relevant laws, regulations, standards, and technical requirements regarding environmental protection, the Company identifies ecological factors, continuously improves relevant ecological protection measures and solutions, and protects the ecological environment of the place where the projects operate. In 2022, 6 cases of violations of environmental laws and regulations occurred in the Company, but no major environmental pollution accident occurred. Among the 6 cases of violations, 5 were attributed to excessive discharge of sewage plants or equipment issues, and 1 was attributed to the failure to re-submit the EIA for approval after the change of wind farm address. All these violations have been rectified..

## *Biodiversity Protection*

The Company has formulated the *Measures for Sustainable Management of Biological and Natural Resources*, which stipulates the responsibilities, procedures and requirements related to biodiversity protection in the process of project development, construction and operation, explains how one should consider the project's threats to biodiversity and ecosystem, and focuses on risks such as habitat loss, ecosystem degradation and fragmentation, invasive alien species, overexploitation, hydrological change, eutrophication and environmental pollution; the Measures specifies a wide range of contents including biodiversity risk identification, impact assessment, monitoring, habitat protection and compensation measures.

Raising employees' awareness of biodiversity conservation is one of the important missions for the Company to carry out biodiversity conservation. On May 22, 2022, the 29th International Day for Biodiversity, the Company inaugurated the "Feng Shang" garden at the headquarter in Beijing. This garden boasts small and micro-ecosystems with 43 types of native plants, including a variety of Chinese medicinal herbs and nectar plants. Facilities such as insect houses, Benjeshecken, dried stream landscapes and artificial nests were set up to attract animals to settle there. Worm towers were combined with compost bins to create organic fertilizers that provide nutrients for plant growth and improve soil quality. The garden introduces the eco-friendly concept into the office park and can guide more employees to learn about biodiversity.



"Feng Shang" Garden with small and micro-ecosystems

# 05

# Sustainable Industry Chain

As a leading wind power company both domestically and globally, Goldwind actively contributes to building a sustainable industry chain by striving to integrate environmentally and socially friendly concepts and requirements into every link of the value chain and teaming up with relevant parties such as customers, suppliers and research institutes, so as to establish an ecosystem for sustainable development of the wind power industry.

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# Responsible Procurement
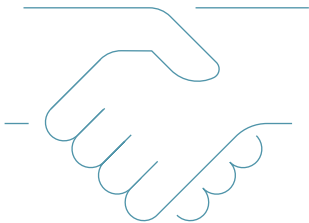
Goldwind is committed to establishing win-win cooperation and long-term mutually beneficial relationships with suppliers, adhering to sound ethical requirements and business norms, conducting fair operations, and protecting the legitimate rights and interests of suppliers, ultimately achieving common growth with suppliers. In addition, Goldwind is dedicated to guiding and driving the sustainable development of suppliers, and continuously promoting the sound and green development of the supply chain by strengthening communication and cooperation with suppliers in corporate social responsibility management and low-carbon transformation.

The company adheres to the concept of transparency and compliance, and the philosophy of fair, just, equal, voluntary and freely negotiated procurement. The relevant procurement departments perform their duties in strict accordance with relevant systems and requirements, so as to protect the legitimate rights and interests of suppliers and ensure the legal compliance of the procurement process. To further enhance the digital management of the procurement process, the Company has developed and launched a life-cycle supplier management platform and implemented unified associative standards by category to guarantee the compliance, fairness and transparency of the procurement process.

Number of Suppliers by Region[7]

| Number of Suppliers by Region | Region | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| | China | 318 | 295 | 283 |
| | Other Asian countries | 5 | 6 | 6 |
| | Europe | 42 | 44 | 52 |
| | North America | 9 | 10 | 11 |

## Supplier Social Responsibility Management

Number of suppliers evaluated

| 2020 | 2021 | 2022 |
|---|---|---|
| 15 | 80 | 215 |

With emphasis on the social responsibility management of suppliers, Goldwind guides and promotes suppliers to improve their own management levels and minimize environmental and social risks. According to *Social Accountability 8000, ISO26000 Guidance on social responsibility and* RBA *Code of Conduct,* the Company has formulated the *Code of conduct on social responsibility for suppliers* (hereinafter referred to as "the Code"), the Company specifies the requirements on labor rights, health and safety, environment, business ethics and management system, among others. The Code is further incorporated into the supply framework contract, requiring suppliers to sign a social responsibility undertaking and commit to comply with the relevant contents of the Code.

The Company has established a social responsibility assessment system for suppliers, comprehensively evaluating suppliers' performance in labor rights, health and safety, environment, business ethics and management system, and making it a zero-tolerance item to be punished by labor inspection department for forced labor, child labor and bribery of Goldwind employees. If a supplier is found to exhibit any zero-tolerance issue in the course of social responsibility assessment, the cooperation will be terminated immediately. Meanwhile, more than 20 primary items are defined, mainly including the establishment of child labor prevention identification and rescue procedures, the provision of humane working environment, the establishment of work procedures to avoid discrimination against employees, and the management of conflict minerals. If a supplier is found to exhibit any primary issue, it will be required to rectify it within two months; if an ordinary issue is detected, the supplier will be required to rectify it within three months. If a supplier fails to pass the rectification within the time limit, it will be removed from the list of qualified suppliers and cancel the cooperation qualification.

The Company adopts methods of supplier self-inspection and random checks by the Company to evaluate the social responsibility performance of suppliers, and expands the scope and number of audits year by year, with the priority put on auditing suppliers of blades, castings, bearings and other core components, as well as key suppliers with large purchase amounts. In 2022, the Company hired an international authority as an independent third party to complete social responsibility audits of 215 suppliers in China (manufacturing),  accounting for 85% of the total number of the Company's major wind turbine component suppliers (manufacturing). Three suppliers were removed from the partnering supplier list because their performance in environmental protection and other aspects did not meet Goldwind's requirements and they failed to rectify the faults afterwards. The annual percentage of suppliers passing social responsibility audits stood at 98.6%.
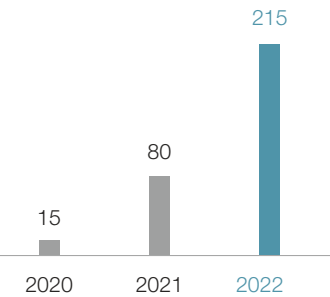


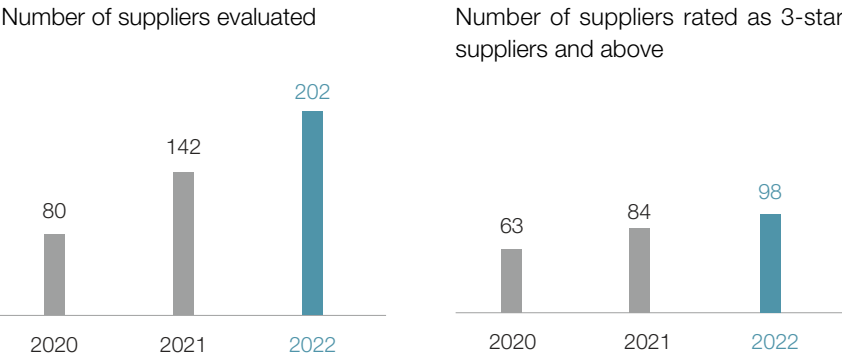[7] The qualified suppliers who provide components, production and services, tools and consumables, equipment, packaging and other raw materials or (and) services in accordance with the *Management measures for the development of wind turbine component suppliers*, which have been evaluated and approved through over 100 strict indicators in business, technology, quality, service, and safety, among other dimensions.

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## Green Supply Chain

Since the pioneering implementation of the Green Supply Chain Project in the industry in 2016, Goldwind has been committed to improving the overall environmental performance of the wind power industry chain and creating a green and low-carbon development ecosystem for the wind power industry. By continuously improving evaluation standards, strengthening the publicity and guidance of green development, carrying out comprehensive supplier evaluation, and boosting suppliers' improvement and optimization, Goldwind has been pushing forward the green and low-carbon transformation of the supply chain.

In 2022, the Company revised the *Evaluation code for green suppliers*, with 6 major greenness evaluation categories and 30 detailed evaluation indicators updated to make the evaluation system more scientific and standardized. Throughout the year, suppliers were evaluated through on-site inspections and document audits on such areas as the use of green energy, energy conservation and emission reduction, and environmental protection. A total of 202 suppliers were included in the evaluation, covering suppliers of core components such as blades, generators, bearings, castings, and towers, with a total of 24 suppliers rated as 4-star and 5-star suppliers, and 49% of suppliers as 3-star suppliers and above.

**Number of suppliers evaluated**

| 2020 | 2021 | 2022 |
|------|------|------|
| 80 | 142 | 202 |

**Number of suppliers rated as 3-star suppliers and above**

| 2020 | 2021 | 2022 |
|------|------|------|
| 63 | 84 | 98 |

Based on the *Goldwind evaluation standard for suppliers' use of green power,* the Company continuously evaluates suppliers' green power use, and comprehensively assesses key indicators such as the amount of green power used by suppliers, the way they use it and the proportion of green power used in the production of Goldwind products. A total of 112 suppliers use green power to produce Goldwind products throughout the year. 45.89% of the power used by the supplier for producing Goldwind products is green power. When ordering products, the Company gives priority to suppliers with a high percentage of green power use, thus encouraging suppliers to increase the amount of green power used.


President Cao Zhigang attended Goldwind's 13th Supplier Conference and delivered a speech

### 2022

**16** suppliers

were developed photovoltaic projects by Goldwind

**7** suppliers

were provided smart energy and carbon management system by Goldwind

**45.89** %

power used by the main suppliers for producing Goldwind products is green power

**5** suppliers

were supported in green power trading to boost their level of green power usage by Goldwind

Strengthening the advocacy and guidance of low-carbon awareness among suppliers and empowering suppliers to use renewable energy are the main ways for the Company to promote low-carbon transformation in the supply chain. By offering training to suppliers, building platforms for industry exchange and motivating outstanding suppliers, Goldwind has been able to gather and boost the green and low-carbon consensus of all parties. Relying on its resource advantages in energy development, energy equipment, energy services and energy applications, the Company supports suppliers in using green power. Based on the energy demand of suppliers and local clean energy endowment, the Company makes scientific planning and reasonable allocation, and integrates various types of distributed clean energy such as wind, solar and energy storage, thus assisting suppliers in the comprehensive use of various types of green power. In 2022, the Company developed photovoltaic projects for 16 suppliers, of which 6 projects have already been connected to the grid. It provided smart energy and carbon management system of supply chains for 7 suppliers, and also supported 5 suppliers in green power trading to boost their level of green power usage.

## Supporting Suppliers' Development

The Company has always regarded its supply chain partners as the core members of the industrial ecosystem, and exchanged information on industry development through continuously effective communication. It provides various training courses for suppliers and strives to achieve mutual growth and win-win cooperation with them.

The Company combines its own management experience and accumulated expertise in the industry with the actual business operation of suppliers to continuously carry out relevant training and empowerment activities, thus enabling suppliers to improve their competence levels in product quality, delivery and innovation.

In 2022, the Company continued to promote the application of APQP4Wind structured approach in the supply chain enterprises to improve parts development and management, and minimize the development cycle, while reducing quality loss due to insufficient prior quality planning and improving the economic benefit of quality. Throughout the year, APQP4Wind training was accomplished for 22 suppliers, of which 9 persons obtained the APQP4Wind manager qualification and 16 obtained the APQP4Wind professional skills qualification. With blades getting larger in size, the conventional ultrasonic nondestructive monitoring technology no longer meets the testing requirements. The Company has teamed up with SGS to conduct phased-array ultrasonic training for suppliers so as to effectively prevent the risk of manufacturing defects.

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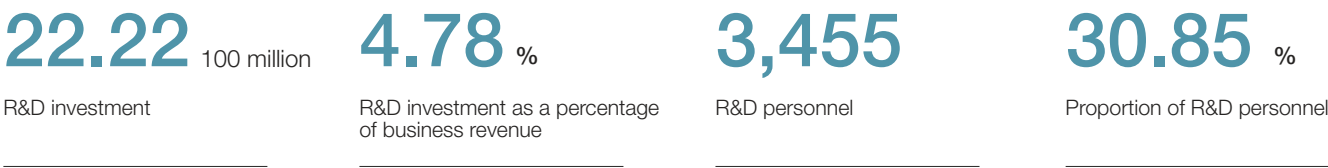
# Sustainable Products

Compared to other power generation methods, wind power features lower environmental impact in the process of converting wind energy into electrical energy. Coupled with its low emission attribute, it has become one of the sustainable energy sources in the global fight against climate change. Goldwind persistently carries out R&D innovation, and strives to improve the power generation and reliability of wind turbines, and reduce the cost of energy, so as to meet the social demand for green power. Meanwhile, it integrates the concept of sustainable development into the R&D and design process of wind turbines, and keeps enhancing the environmental friendliness and safety performance of wind turbines, endeavoring to provide accountable and sustainable wind power products.

## *Product Innovation and R&D*

Goldwind continues to improve its innovation system and independent innovation platform construction, and integrate internal and external resources for technical innovation so as to continuously upgrade its R&D innovation capability. By focusing on the permanent magnet technology route of wind turbines, Goldwind promotes the R&D innovation and industrialization of wind turbines, continuously improves the performance of wind turbine products, and enriches the intelligent wind turbine series products to cover a wider range of application scenarios.

A global layout of "1 R&D center + 7 R&D bases" R&D innovation system has been set up, with Beijing R&D center as the headquarters for technological innovation, product development and regional resource management, which radiates and drives the development of R&D bases in Germany, Denmark, Australia, and Xinjiang, Jiangsu (Wuxi and Yancheng) and Zhejiang in China, mainly focusing on key technical problems and prospective issues for the development of the Company and the wind power industry, developing new wind power technologies, new products, new equipment and processes, and improving the Company's innovation capability and core competitiveness for the sustainable development of the Company.

The Company continues to expand its investment in R&D, establish a mechanism for the identification, cultivation and incentive of S&T talents, and cultivate and enhance its independent innovation capability. In 2022, the Company's R&D investment reached RMB 2.22 billion, accounting for 4.78% of the total revenue.  The R&D personnel reached 3,455 accounting for 30.85% of its workforce.

**22.22** 100 million
R&D investment

**4.78** %
R&D investment as a percentage of business revenue

**3,455**
R&D personnel

**30.85** %
Proportion of R&D personnel

| | 2022 | 2021 | 2020 |
|---|---|---|---|
| R&D investment (RMB 100 million) | 22.22 | 22.37 | 22.71 |
| R&D investment as a proportion of total revenue (%) | 4.78 | 4.42 | 4.04 |
| Number of R&D personnel | 3,455 | 3,239 | 2,910 |
| R&D technicians as a proportion of total employees (%) | 30.85 | 30.04 | 32.49 |

The Company actively protects intellectual property rights and promotes innovation. In the process of technology introduction and cooperation, the Company takes the initiative to study the development of similar technologies at home and abroad, and respects and avoids infringing on others' intellectual property rights. During the year, there were 642 new applications for domestic patents, including 405 for invention patents, accounting for 63%; 523 new domestic patents were granted, including 291 new invention patents, accounting for 55%; 358 new overseas patents applications were filed, and 133 overseas patents were granted.

In the era of new energy grid parity, larger wind turbines are a key way to reduce the cost per kWh and improve the efficiency of power generation. Relying on its long-accumulated technical and theoretical innovation experience in the wind power field, Goldwind supports the development of large-scale wind turbine products, and guarantees the reliability of large-scale wind turbine products by applying new technological materials, enhancing the design capability of simulation software, and investing in the construction of large-scale test beds. In its innovation process, the Company actively introduces such technologies as AI, cloud computing and IoT to promote the technological progress of wind turbines and enhance their intelligence level. Following the release of a new generation of medium-speed permanent magnet platform products in 2021, the Company gave full play to the advantages of platform products in 2022, forming four major platforms, namely GWHV11, GWHV12, GWHV20 and GWHV21, including both onshore and offshore wind turbine series products, featuring high reliability, high profitability and high power generation performance. Among them, the GWH191-6.7MW wind turbine of the GWHV12 platform won the honor of "Wind Power Pacemaker" onshore wind turbine (6 MW+) awarded by the authoritative media in the industry.

**642**
new application for domestic patents

**523**
new domestic patents granted

**358**
new application for overseas patents

GWH252-16MW offshore wind turbine was selected as one of the "Top 10 National Products of 2022", featuring the largest single unit capacity, the largest rotor diameter and the lightest weight per MW of wind turbine rolling off the production line worldwide



### Developing GTSim, a simulation software of wind turbine with independent IP rights

With modern wind turbine design driven by simulation, the multidisciplinary coupling simulation of wind turbine has been the key to the continuous progress of wind power technology. Goldwind developed GTSim, a simulation software of wind turbine with independent IP, as the core software throughout the whole life cycle of wind turbines. It is equipped with multi-physical field coupling simulation capability and full-process wind turbine simulation function in all working conditions, allowing simulation design of wind turbines with large rotors, long and flexible blades, and high towers. In May 2022, GTSim was authoritatively certified by the international certification body TÜV NORD, making the Company the first wind turbine manufacturer in Asia to obtain this certification.

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## Environmentally Sound Wind Turbines

The Company develops and manufactures wind turbines with low-emission attributes to promote global energy transformation and address climate change. Meanwhile, it carries the concept of environmental protection through the entire process of wind turbine product development and design, procurement, production, installation, operation and maintenance, producing environmentally sound wind turbines by means of technological innovation and process optimization.

Compared to other power generation technologies, wind power exhibits the lowest life-cycle carbon emissions per kWh and significant advantages in terms of land use, low acidity, and low eutrophication[8].The Company continues to carry out Life Cycle Assessment (LCA) of wind turbines to analyze their environmental impact factors throughout their life cycle, identify opportunities to improve their environmental performance at different stages, and reduce their adverse impact on the environment. Five types of wind turbines have undergone LCA and passed third-party certification reviews. The data shows that the carbon emissions per unit of electricity generated correspond to 5 g to 8 g over the 20-year life cycle of the five types of wind turbines.

| Power generation technology/product | Carbon emissions per kWh ($CO_2$ equivalent) |
|---|---|
| Goldwind GW155-4.5MW wind turbine | 7.25g |
| Goldwind GW136-4.2MW wind turbine | 8.04g |
| Goldwind GW165-5.2MW wind turbine | 6.25g |
| Goldwind GW165-5.6MW wind turbine | 5.99g |
| Goldwind GW165-6.0MW wind turbine | 5.74g |
| Wind power (onshore/offshore)[9] | 11~12g |
| Centralized solar power | 28g |
| Thermal power on average | 820g |

Goldwind identifies critical environmental impact factors of wind turbines and takes optimization measures to gradually reduce and minimize the impact as much as it can.

**Noise:** For wind farms with noise reduction requirements, the sound pressure level at specified points is controlled by increasing the trailing edge of the blades through direct prediction based on the sound source model and propagation model, thus reducing the noise of wind turbines and enhancing their environmentally sound performance.

**Shadow flicker:** Our wind turbines are equipped with the shadow flicker operation mode, enabling the calculation of the shadow impact range based on rotor length, height and rotation frequency and ambient light intensity, active adjustment of turbine operation status, and control of shadow flicker frequency through rotational speed control and sector management.

**Eco-landscape impact:** When selecting the location and laying out wind turbines, the surrounding landscape features are fully considered, and active consultations are held with the local community to build wind farms in conjunction with the layout of local industrial planning, thus minimizing the impact on the surrounding landscape. Customized painting is carried out, and painted wind turbines are launched, so that they are blended perfectly with the culture and the environment.

**Bird protection:** Video analysis, thermal imaging, sound detection, and radar detection, among other technologies, are comprehensively used to detect bird activities. Ultrasonic technology, high-power digital voice technology, strong flash, laser bird repelling technology, and shockwave explosion repelling technology are used to drive away birds about to fly into the operating area. The hub and blades are painted purple to avoid birds from approaching the wind turbines.

[8] The relevant information is taken from *Life Cycle Assessment of Electricity Generation Options,* a report of the United Nations Economic Commission for Europe (UNECE).
[9] The relevant data are extracted from the 5th Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC).



Goldwind's Usak project in Turkey applies purple coating to hubs and blades to minimize the impact of large wind turbine equipment on birds

Facing the challenge of recycling retired wind turbine blades, the Company actively researches the replacement of the original thermosetting resin-based composite wind turbine blades and carries out R&D on new environmentally friendly blades, expecting to address this recycling challenge from the root, and aiming to achieve the sustainable development goal of 100% recycling of wind turbines by 2040. In 2022, the Company joint blade and material manufacturers to develop novel resin blades. We jointly explored the application of recyclable thermosetting resin EzCiclo on wind turbine blade products, including material evaluation, component/blade production, and commercialization, laying the foundation for the next industrialization application.

## Product Quality and Safety

Goldwind holds the quality and reliability of wind power products as the cornerstone of its sustainable development, and practices the philosophy of "High Quality, Constant Reliability". Based on the quality management idea of "emphasizing prevention, refining management and promoting development", Goldwind protects the quality of wind turbine products, with continuous improvement. In 2022, the Company continued to practice the Performance Excellence Model and successfully passed the accreditation of the 18th National Quality Award (2019) after three years. With guaranteeing the quality of the whole chain of medium-speed permanent magnets as the core, by focusing on development, testing, assembly, service and software, as well as the five major components of generators, gearboxes, blades, castings and converters, the Company carried out whole-process quality control in four dimensions, namely capacity building, risk control, process management and performance measurement. Differentiated management and control was performed targeting the technical characteristics of different large parts, with 100% reliability verification. On the basis of a well-run quality management system, the Company applied quality management tools such as Advanced Product Quality Planning (APQP) and Failure Mode and Effects Analysis (FMEA) to upgrade its quality assurance capability. It continuously launched quality culture building activities to raise employees' quality awareness.

**95.2**

2022 customer satisfaction score

Goldwind received one customer complaint throughout the year, which has been properly handled. Upon receiving the complaint, the company made rapid response according to the *Customer complaint control procedure, Customer complaint handling process* and other regulations, and later visited the customer to confirm whether the solution was effective and satisfactory, so as to continuously improve customer service. Focusing on customer experience, the Company conducts real-time satisfaction research in key aspects such as pre-acceptance and handover out of warranty, and regularly investigates the overall satisfaction of customers in terms of product quality, delivery and after-sales service by means of online questionnaires. In 2022, the Company's overall customer satisfaction scored 95.2, a slight increase year-over-year.

In order to protect customer information and strengthen confidentiality, Goldwind formulated the *Customer information and privacy management rules* to clarify the competent departments and their responsibilities, assign permissions in the customer maintenance management system, set up customer information transfer process, establish assessment requirements, and prevent customer information disclosure.

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### The world's largest 16 MW wind turbine transmission experimental platform

With the trend of larger wind turbines worldwide, Goldwind has invested in the world's most capacious and full-featured experimental platform, the six-degree-of-freedom 16 MW wind turbine transmission experimental platform, which fully simulates the wind turbine's field operation by combining field conditions with simulation testing. It enables the verification of the transmission system of direct-drive, semi-direct drive and double-fed wind turbines, as well as generators, converters, electric control systems and multi-domain in-loop real-time simulation systems, and features such experimental capabilities as torque and bending moment measurement and modular scalable test systems. The experimental platform is capable of verifying and improving the reliability of wind turbine products, having completed more than a hundred tests and verification on whole wind turbines and formed thousands of optimization items, thus supporting the iterative optimization and experimental verification of each MW-class wind turbine.



Goldwind's products have been selected as the Best Wind Turbines in the World 2022 by Windpower Monthly, an international authority

- GWH191-4.0 MW wind turbine: Best Wind Turbine up to 5.6 MW, Gold Prize
- GWH191-6.7 MW wind turbine: Best Wind Turbine 5.6 MW Plus, Silver Prize
- Goldwind medium-speed permanent magnet drivetrain: Top Drivetrains, Silver Prize



Following the design concept of "intrinsic safety", the Company has established and continuously improved the HSE technical system framework by combining years of wind turbine operation data to facilitate the fulfillment of requirements on mechanical safety, electrical safety and occupational health, thus ensuring the safety performance of wind turbine products. Early in the development and design of wind turbines, the Company takes into full consideration the health and safety of personnel and other elements, and implements the concept of safety into the design process; for risks that cannot be completely eliminated, protective technical measures are taken, such as the implementation of safety guardrails, safety hanging points, shields, and safety doors; for risks that may be easily overlooked and cannot be completely eliminated, safety warnings are provided, and safety signs are displayed at appropriate locations to provide all-round safety protection. During the reporting period, no wind turbines were recalled due to safety or health issues.

# Green Wind Farm

The Company incorporates the concept of green development throughout the entire life cycle of wind farm construction and operations. To build green wind farm projects, the Company specifies the requirements regarding environmental and social impact management during the transportation, construction, operation and maintenance of wind farm projects, to avoid and mitigate the direct or indirect environmental impact of project activities on the surrounding environment and community.

## Transportation of Wind Turbine Components

At the planning and design stage of wind farms, the Company utilizes digital technology to carry out automatic road planning by setting road design parameters based on the location of wind turbine points and step-up substations and road path sensitive avoidance areas, to reasonably plan transportation routes and minimize lines of roads to be developed, thus minimizing the impact on the environment while securing equipment transportation. The *Safety management manual for logistics service providers* has been formulated, requiring carriers to implement standards from all aspects of transportation, selecting carriers with environmental protection system certification, and requesting carriers to choose vehicles that meet the emission requirements of all places along their routes. During road investigations, engineers are requested to reasonably plan transportation routes to minimize environmental harm. During transportation, carriers should be aware of environmental protection and carry out ecological compensation along their routes once transportation is completed.

## Wind Farm Construction

During the development and construction of wind farms, the Company takes into account and identifies the impact of the project site on environmental and social factors such as surrounding residents, the natural environment, and human and historical values, actively avoids cultural heritage, technical facilities, agriculture, fisheries and other ecosystems, and develops systems for environmental and social risk identification, evaluation and control management, so as to properly manage the impact of wind power EPC on the surrounding environment from the initial stage of development through the entire life cycle. The Company considers labor and working conditions, resource efficiency and pollution prevention, land acquisition and involuntary relocation, sustainable management of bio-natural resources, ethnic minority affairs, and cultural heritage management as important elements of risk identification, and identifies, evaluates and manages them in accordance with the risks of major matters and routine risks in investment decisions. It keeps communication, contact and interaction with stakeholders, proactively listens to their expectations and demands, and discloses relevant information and issues reports when necessary.



To protect the local ancient Great Wall site, Jiangjiaping Wind Farm in Shuozhou, Shanxi province, reserved clearance distances during its development and construction, while strengthening training and education for employees and related parties, and conducting daily inspections to avoid adverse impacts on the ancient Great Wall site



Fenglingdu wind turbine shows local historical and cultural allusions through color painting

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The Company takes the initiative to properly protect the ecological environment and strictly implements the "three simultaneous" system of "simultaneous design, construction and operation" of environmental protection facilities and the main project. It formulates ecological protection and restoration plans, and rigorously executes various environmental protection and soil and water conservation measures to minimize pollution caused by construction, lower ecological disturbance to the surrounding areas, and protect surface vegetation, water bodies and biodiversity around the project site. In addition, it controls the environmental impact of construction sites, construction machinery and vehicle transport fumes and noise, and actively uses recyclable materials and reuses existing structures.


Topsoil is stripped, collected, stacked and covered centrally

When developing and constructing the wind farm, the Company timely strips and collects the topsoil layer during the road clearing process, which is fixed and stacked in the topsoil storage yard and temporarily blocked and covered to facilitate greening and mulching in the later stage; the construction of temporary drainage ditches and the main project is carried out concurrently to ensure the timely and effective functioning of soil and water conservation measures, timely exclusion of rainwater from the road and slope surface, and reduction of soil and water loss area.


Soil and water conservation measures and the main project construction are carried out concurrently

## Smart Operation and Maintenance

To ensure the stable operation of wind turbines and their power generation during their life cycle, the Company utilizes such technologies as the IoT, big data, cloud computing, and AI to build a smart operation system for wind farms, realizing centralized monitoring and regional service sharing, and forming an operation model with unmanned wind farms and fewer people on duty.

The Company collects, transmits, and analyzes data from various energy equipment through the information platform, and provides services including intelligent analysis and professional support based on hundreds of early warning algorithm models, thus enabling intelligent troubleshooting and big data warning as the core of preventive maintenance. Relying on its industrial chain resources, the Company has formed a service network covering both home and abroad, capable of providing timely on-site operation and maintenance, spare parts supply, component maintenance, and technical improvement and optimization services to ensure the sound and efficient operation of wind turbines and increased mean trouble-free operation time. Goldwind's smart operation system SOAM™ integrates modules for centralized monitoring, equipment health management, asset management, power forecasting, power trading, data asset management and intelligent field stations, consolidating all links in the process of wind farm operation and maintenance. Compatible with different brands of wind turbine equipment, it leverages such technologies as big data, AI, IoT, mobile internet, AR/VR and digital twins, and incorporates advanced asset operation and management models to achieve cost reduction and efficiency improvement of new energy assets.


The first and largest global monitoring center for new energy was established in China

# Smart Water Treatment

The water treatment business is developed and expanded by Goldwind using its own resources and advantages in the field of energy conservation and environmental protection against the background of rapid growth in water demand and severe water pollution in China, mainly engaged in investment, design, construction, operation and management of water projects, as well as the development, sale and maintenance of related equipment and materials. It covers various fields such as tap water, sewage, sludge, and eco-environmental treatment.

While strictly controlling the quality of water output, the Company relies on new energy and Energy Internet technologies to actively explore and improve the automation, intensification and intelligent management of water plant operation and practice the sustainable development concept of clean and low-carbon energy utilization. In 2022, the Company optimized the process and upgraded the intelligence level in four aspects, namely, energy use, energy control, quality improvement and energy saving.

Regarding energy use, as per the energy demand of sewage plants and local clean energy endowment, scientific planning and reasonable allocations are made and various types of distributed energy resources such as wind and solar power are integrated to achieve optimal allocation and intelligent scheduling of diversified energy sources, effectively reducing energy costs and emissions of sewage plants. Energy storage systems are designed and installed to achieve peak shaving, further optimizing the power consumption structure of sewage plants and improving the use of green energy.

Regarding energy control, the deployment of precise aeration systems, precise chemical feeding systems and enhanced recycling of wastewater are employed to reduce consumption,and minimize carbon emissions.

Regarding quality improvement, the Company has launched various process package technologies for water treatment units based on its own R&D results, mainly including two-stage AO biochemical treatment technology (GW-DAO technology) and ozone catalytic oxidation technology applications, improving the removal rate of total nitrogen and phosphorus and lowering COD emission levels to achieve lower emissions in a more economical way.

Regarding energy saving, by adopting energy-saving equipment such as air-suspended fans, and energy-saving technologies such as variable frequency regulation and control, and developing stirring paddles with direct-drive permanent magnet at their core, energy-efficient operation and management of the system is realized, resulting in reduced environmental impact.

2022

**66**
Number of companies for water-related services

**2.84** million tons/day
Cumulative operating agreement size

**33**
Business covered cities

# 06

# Fair and Sound Working Environment

Goldwind is committed to protecting the basic rights and interests of employees, safeguarding their occupational health and safety, creating a diverse, fair and inclusive workplace climate, providing extensive career development space and resources, respecting employees' aspirations and continuously improving employee benefits, so as to create a reassuring and pleasant working environment for employees.

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# Fair and Standard Employment

The Company strictly abides by *China's Labor Law*, *Labor Contract Law*, and other policies and regulations, as well as the laws and regulations of the countries and regions where it operates overseas, and relevant international conventions approved by the Chinese government. It adheres to the equal, non-discriminatory employment principle, treating employees of different races, skin colors, ethnicities, genders, ages, religious beliefs and cultural backgrounds fairly and properly, and strictly prohibiting and discouraging any form of child or forced labor. It is not allowed to force employees to work or restrict their freedom by means of violence, threat or illegal restriction of personal freedom. Corporal punishment, intimidation, harassment, abuse and any discrimination against employees are prohibited. In 2022, there was no child labor, forced labor, bonded labor or human trafficking.
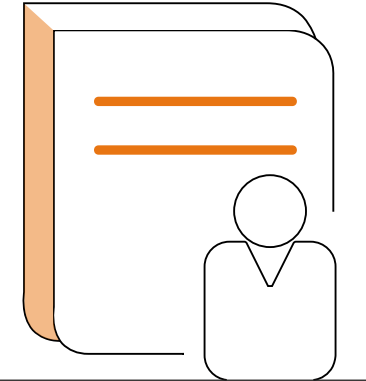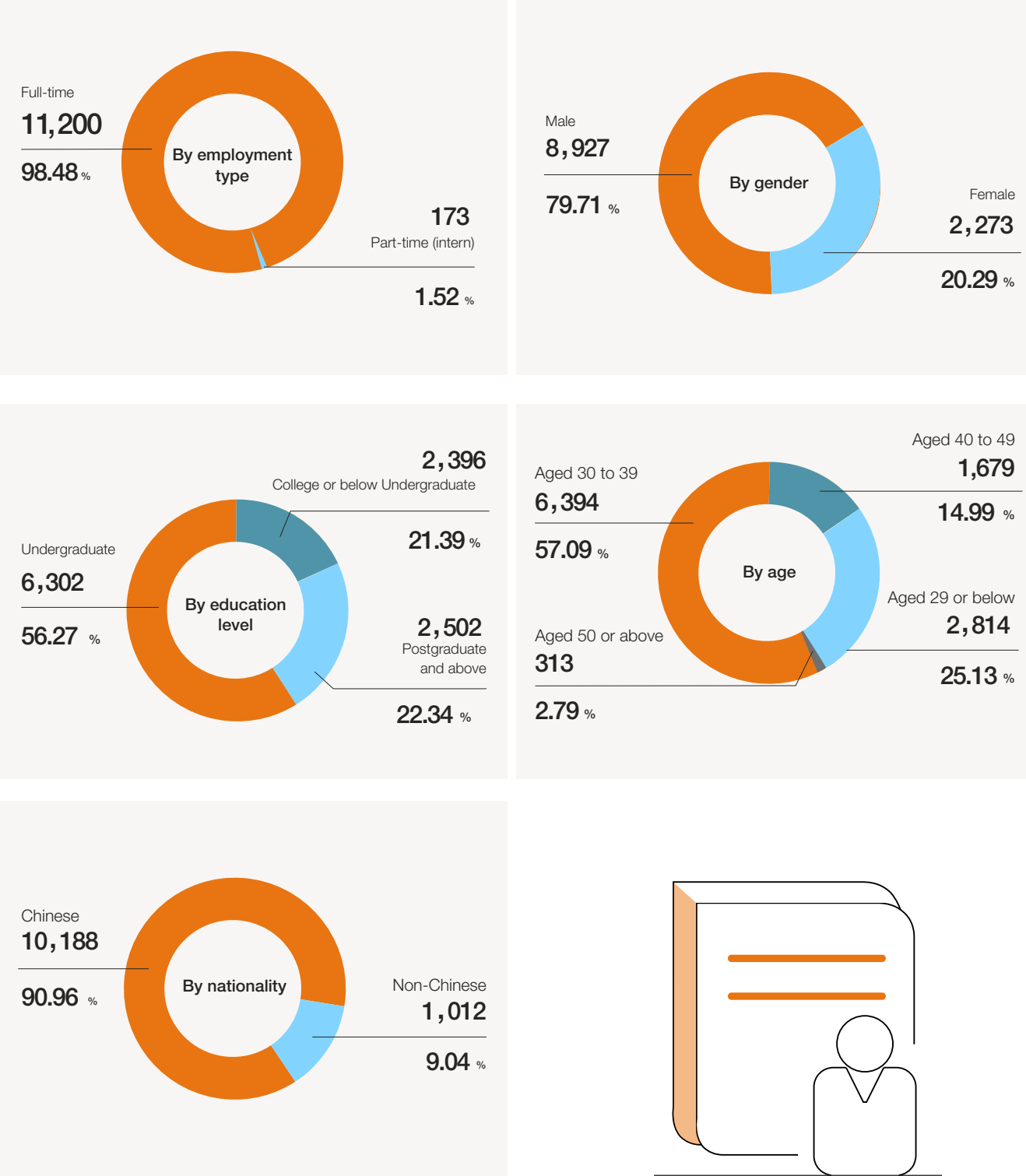
To protect employees' personal interests from infringement and avoid discrimination, forced labor, child labor and human trafficking in the process of employment, Goldwind released the Management measures on employee rights and interests in 2022, which contains three sections: management regulations on employee equality, management regulations on prohibition of forced labor and management regulations on prohibition of child labor, clearly prohibits discrimination, harassment, restriction of personal freedom, use of forced labor and child labor. The Company stipulates related processes such as management operations and supervision and inspection methods. Meanwhile, a remedial system for violations is improved and complaint channels are standardized. It is clarified that, when child labor is mistakenly recruited, it must be reported and verified according to the law, and the child should be sent for medical examination, paid, escorted home and provided with appropriate financial subsidies and other support resources. If a violation of the rights and interests of employees is revealed, the violator will be disciplined in accordance with the Group's Reward and Punishment Management System, and the victim will be offered counseling and timely compensation.

In order to ensure the implementation of the system and to enhance employees' awareness of rights protection and legal knowledge, the Company has adopted both online and offline approaches to provide special training on the employee rights protection system for all employees, and played relevant content on the multimedia screens in the elevators and corridors of the Company to strengthen employees' understanding of the system. Our international subsidiaries are also actively engaged in training on relevant topics. Goldwind Australia has partnered with a leading independent human rights and social impact services specialist to provide mandatory Modern Slavery training to all employees on the definition and implications of modern slavery and how to identify Modern Slavery risks with suppliers during the procurement process.

In 2022, as required by overseas customers and financing institutions, Goldwind actively cooperated with international third-party auditors to carry out audits on the Company's labor rights protection, environmental protection, business ethics and supply chain social responsibility management. In accordance with relevant Chinese laws and regulations, core conventions of the International Labor Organization (ILO), standards such as SA8000, ISO26000 and ISO45000, as well as ESG performance standards of financing institutions such as the International Finance Corporation, the European Bank for Reconstruction and Development and the Asian Development Bank, the third party auditors thoroughly evaluated the operation of the Company's final assembly plant and major suppliers and provided audit reports to the clients and financing institutions. Goldwind has established a sound employee rights and interests guarantee system and work procedures, set up a good supplier social responsibility evaluation mechanism and built strong management capability, and there is no circumstance of child labor, forced labor, bonded labor or any violation of related laws and regulations. The Company's performance in the audited areas has been acknowledged by overseas customers and financing institutions.



## Overview of Employee Composition[10]

**By employment type**
Full-time
11,200
98.48 %
Part-time (intern)
173
1.52 %

**By gender**
Male
8,927
79.71 %
Female
2,273
20.29 %

**By education level**
College or below Undergraduate
2,396
21.39 %
Undergraduate
6,302
56.27 %
Postgraduate and above
2,502
22.34 %

**By age**
Aged 40 to 49
1,679
14.99 %
Aged 30 to 39
6,394
57.09 %
Aged 29 or below
2,814
25.13 %
Aged 50 or above
313
2.79 %

**By nationality**
Chinese
10,188
90.96 %
Non-Chinese
1,012
9.04 %

[10]The total number of employees includes only full-time employees while excluding part-time employees (interns) in the statistics of all categories, except for the number of part-time employees (interns) in the category of employment type.

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# Training and Development

Goldwind provides employees with the right to participate in diversified learning and training and plan personal career development, offers learning and development solutions, and designs career development paths to help employees realize their values.

## Employee Training

The Company attaches much importance to building the talent training system. Since the establishment of the first corporate university in China's wind power industry in 2011 (now renamed Goldwind Learning and Development Center), the Company has been improving its training system year by year, aiming to "cultivate excellent value creators of new energy". By accumulating and sharing knowledge and experience, and building a curriculum system and learning platform, the Company provides employees with specialized and customized learning and development solutions to meet their learning needs for improving expertise and basic professional skills.

To meet the needs of the Company's business development and employee growth, the Company continues to deepen the accumulation of wind power knowledge and experience, forming a knowledge tree of wind power containing more than 1,200 proprietary courses, and exploring diversified and multi-channel learning methods. Relying on the online learning platform, it expands the coverage of training, broadens the breadth of learning, and enriches the learning content to provide in-depth support for business and meet the learning needs of employees.

In 2022, the Company continued to improve employee training, designed and organized various training programs covering leadership, expertise, general competence and new hires, and settled and solidified a number of classic training and talent development programs for new hires, new managers, teamwork, dedicated empowerment, and the 100-Person Project.

To facilitate the accumulation and passing on of knowledge, the Company has forged a standard course development process and formulated and carried out internal lecturer training and management based on the *Measures for lecturer management*. Since 2020, the Company has conducted internal procurement course activities in which more than 400 internal lecturers have participated, resulting in over 340 high-quality in-house courses.

**1,200**
Proprietary courses

**400**
Internal lecturers

**340**
In-house courses



## Main Group-level Learning & Development Programs in 2022

| | Training program name | Training target | Main training content | Number of trainees |
|---|---|---|---|---|
| Leadership and Management | Training for New Managers | New managers, front-line managers | Equip them with the management knowledge and tools they should have and help them inherit the Goldwind culture and reshape the consensus of cadres, so as to realize the role change from individual contributors to team managers. | 3 sessions conducted, involving 108 trainees in total |
| | G+ Oscar Teamwork Talent Development Program | Directors, division heads, front-line managers | Carry our real work scenarios-based in-depth training and practical tasks to help the team establish the vision, promote teamwork, solve problems at work and improve team performance through reading tasks, workshops, and practical sessions that focus on team collaboration and team development. | 7 teams, involving 67 trainees in total |
| | Management Capacity Enhancement for Cadres | Executives, directors, division heads | Carry out diverse management improvement training programs, including specialized empowerment sessions on *HR effectiveness enhancement, Q12 dedication enhancement,* and *Business capability and performance enhancement.* | 253 trainees covered in total |
| Individual Competency | Basic Training | Employees | Introduce the up-to-date basic knowledge of the Company to employees and inform them of the basic code of conduct, as general knowledge training for Goldwind employees. | Multiple batches, with a cumulative coverage of 98%+ |
| | Training for New Hires | New hires | Help new hires quickly give full play to their value on the Goldwind platform and cultivate Goldwind members with customer-oriented and frontline-driven values, including intensive training for new hires from social recruitment and Zero Carbon Training Camp, a campus recruitment brand program. | 20 sessions in total, involving 1,759 trainees |
| | Online Live Courses | Employees | Specialized training is conducted targeting business pain points, and professional knowledge is shared with focuses on the general skills required of all employees. | 164 live streaming sessions of various topics, involving 14,975 participants |

| Overview of Annual Employee Training | Proportion of employees receiving training (%) | Training hours per capita (hours) |
|---|---|---|
| | 99.1 | 46 |

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In order to build local teams of wind power professionals, the Company continues to expand its local talent training and develop talent training programs according to business needs in each country and region where it operates overseas, supporting the growth of local employees.

### Goldwind empowers Pakistani employees and nurtures local wind power professionals

Goldwind actively promotes the building of a local talent team while participating in the construction of wind power projects in Pakistan. By the end of 2022, the number of local employees reached 39, with local people accounting for 85%.

To enhance the technical competence of local staff quickly, the Company has formulated detailed training plans and assessment requirements, shared the basic scientific knowledge such as the working principle of wind power, and transferred wind turbine maintenance skills to local staff. Such systematic training has effectively boosted the growth of local employees and cultivated local wind power professionals in Pakistan.



Maintenance capacity training for local employees



Local GWO training platform in Pakistan

## Career Development

The Company always closely integrates employees' personal interests and expertise with the development needs of the Company, analyzes and summarizes the subjective and objective factors determining employees' career development through two development channels: specialty channel and management channel. With the overall design, planning, implementation, evaluation and feedback, the Company aligns the career development goals of each employee with the strategic goals of corporate development.

Regarding the specialty development channel, a complete job qualification system has been set up to clearly define the qualification standards for different job categories and levels, so as to guide talents to move towards higher-level positions. Employees get promotions by evaluating their qualifications and progressing deeper in their fields. By the end of 2022, the Company has established 7 major categories and 40 sub-categories, and 6 vertical levels, with a variety of specialty development channels for employees.

Regarding the management development channel, the Company designs systematic, differentiated and precise talent development modes for different categories of employees at different levels, and improves the comprehensive management capability of the talent team in an all-round way by adopting a combination of training methods such as "rotational training", "horse-racing mechanism", "joint training along the upstream and downstream of the ecological chain", "mentorship", "workshop", "wolf training" and "course learning", guiding employees to develop into management cadres and specialized cadres, and promoting the realization of their career development goals.

## Health and Safety

The company continues to optimize occupational health and safety management, and as of the end of the reporting period, the main production business units related to wind turbine R&D and manufacturing, wind farm investment and development, wind power operation and maintenance services, and water business have all obtained certification of the ISO45001 occupational health and safety management system. By shaping a safety culture, managing safety risks, conducting safety education, facilitating safety innovation, strengthening safety management of related parties, ensuring the safety of offshore wind power work and implementing occupational safety and health management for all employees, the Company promotes the close integration of safety system construction and business, striving to build an intrinsically safety-oriented enterprise. In 2022, the Company had one work-related fatal accident. Upon the occurrence of the accident, emergency responses were activated to organize the rescue work. An internal accident investigation team was set up to investigate and analyze the causes of the accident. To prevent the recurrence of similar accidents, the Company issued a notice of this accident and an accident investigation report, organized units at all levels of the Company to undertake study, self-examination and self-correction, and put in place rectification and supervision.

### Shaping a Safety Culture

The Company continuously engages in the construction of a safety culture, and establishes the characteristics of corporate safety culture by such means as signing target commitments and strengthening propaganda.

In respect of establishing safety accountability, 23 business units and subsidiaries of the Company were organized to sign accountability letters for safety target indicators in 2022, specifying the target of no serious injuries, fatal accidents, occupational diseases or occupational poisoning incidents.

In respect of safety culture implementation, thematic activities are continuously carried out to create a safety culture climate and regulate employees' safety behavior. A safety-themed corporate newsletter account was opened and more than 400 articles on safety topics were published throughout the year; safety awareness surveys and propaganda were conducted, safety culture was interpreted and posters were released. In addition, in the Production Safety Month, the "Four Ones" activities were organized under the theme of "Complying with the Production Safety Law and Acting as the Primary Responsible Person", namely, delivering one safety lecture, conducting one self-assessment of the performance of the "Primary Responsible Person for Safety", solving one safety issue and participating in one safety activity, so as to guide the principal persons to fulfill their safety responsibilities.

### Managing Safety Risks

The Company strictly implements the requirements of the National Production safety law, strengthens the awareness of red lines and bottom-line thinking, and publishes the "Ten Safety Red Lines" so as to guide all employees to take safety seriously through positive and negative incentives.

In the area of safety risk prevention and control, the Company built a model for identifying and controlling changing risks in 2022, identifying changing risks in the design, process, tooling equipment, materials, programs, personnel, environment and planning, and formulating risk control measures in eight areas: fundamental safety, operational programs, tooling equipment acceptance, standard revision, risk identification, personnel capability training, site supervision, and emergency response.

In the area of wind farm risk prevention and control, the *Safety, quality and environmental risk grading and control manual* and the *Instructions for safety and environmental Management of wind farm projects* were formulated to strengthen safety control at source, focus on the weak links of safety and environmental management, implement grading and control strategies, and enforce safety risk management of key links and important processes.

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## Conducting Safety Education

The Company has conducted safety training through both online and offline learning to guarantee employees' safety production and improve employees' safety awareness and skills. In 2022, the Company reviewed and developed a safety competency matrix and learning map for each position, and optimized the competency matrix and course library. Based on the professional level of safety personnel, the Company identified 49 HSE specialized fields and set up a pool of experts to conduct dedicated training and consultation via the "Weekly Lesson". In addition, the Company conducted safety leadership programs, warning education on accident cases, safety empowerment training, safety escort training camps, and field operation training, incorporating innovative tools such as VR experience to popularize safety-related knowledge and enhance training effectiveness. A total of 388,547 hours of safety training were completed throughout the year.

## Facilitating Safety Innovation

In 2022, the Company launched the innovation projects on safety technologies, enriched safety management methods and measures, and improved safety production management.

For example, by using the information technology, the Company expanded its safety information system to realize electronic data processing (EDP), transaction processing system (TPS), management information system (MIS), and decision support system (DSS) functions to upgrade its safety information management capabilities.Safety lean management was pushed forward, and safety management was carried out with the concept of "lean" management to improve the working standard of safety environment. Throughout the year, a total of 48 safety and environmental lean projects were carried out in the Company.

## Safety of Interested Party

Safety of interested parties constitutes a vital part of the Company's safety management. The Company has formulated the *Environmental and occupational health and safety management system for group-related parties,* organized regular training, inspection and assessment, and urged related parties to implement timely rectification and improvement.

In 2022, the Company conducted admission safety reviews for 208 suppliers/outsourced parties; and inspected 1,456 related parties operating on project sites. Through safety information on admission, on-site training and process supervision, the Company continuously carried out safety training for related parties to enhance the safety skills and awareness of their management and safety personnel as well as their knowledge and understanding of the Company's safety standards.

## Offshore Wind Power Safety

The Company works to upgrade its safety management and emergency support while developing offshore wind power projects. The Company requires that all offshore workers receive GWO basic safety training and skill certifications, and rescue equipment be equipped on transportation ships, in order to quickly and effectively conduct rescues.

In 2022, the Company strengthened the safety management of offshore wind power by reinforcing training, implementing a safety accountability system, strengthening safety assessment and rewards and punishments, enforcing a safety point system, and executing day-to-day standardized safety tasks.

## Occupational Health and Safety

To protect the occupational health and safety of every employee, the Company has set up detailed occupational health records and employee health monitoring files. Besides, the Company evaluates the risk factors of occupational diseases and examines hazards on a regular basis. When signing labor contracts with employees, the Company informs them of the risk factors of the positions in advance, and strengthens occupational health and safety education and training during the onboarding training of new hires.

The Company provides employees with professional and special labor protective gears, puts warning labels and instructions in conspicuous places for equipment and chemical materials that may induce occupational diseases, and regularly checks and repairs protective facilities and equipment, whenever and wherever necessary. For employees working in special environments such as high-altitude regions and offshore environment, the Company customizes the physical examination which focuses on cardiovascular and cerebrovascular diseases and rheumatism diseases. The participation rate of employees in physical examination is 100%. The Company pays great attention to the mental health of employees, and carries out programs such as mental health consultation, mental health examination and online mental health classes.

In response to the COVID pandemic in China, the Company prepared a Special *Emergency response plan for public health emergencies (COVID)* in 2022, taking into account the national policy requirements and the actual pandemic containment status, to standardize the responsibilities of relevant departments for pandemic management, and the workflow for emergency response a nd disposal. It worked with the government's disease control department to respond to the pandemic prevention and control policy and implement containment measures. In response to the insecure international conditions such as the crisis in Ukraine, the Company orderly evacuated its employees from the crisis region to ensure their safety and health.

# Employee Care

The Company shapes a harmonious communication atmosphere and good work environment, listens to employees' needs, and continuously optimizes the work environment, thus enhancing employees' cohesion and sense of belonging.

## Employee Communication

The Company is committed to fostering an open and transparent working environment, and attaches considerable importance to communication with employees to ensure their right to know and participate in the management of the Company. Various communication channels have been established across different levels, departments and cultures, and regular work communication meetings and questionnaire surveys are adopted to enhance the understanding between employees and the Company, deepen understanding and mutual trust, carry out targeted improvements and meet employees' needs properly.

Additionally, the Company continues to conduct employee satisfaction and engagement surveys to gain a comprehensive understanding of employee needs, focus on points for management improvement, develop improvement plans and deliver ongoing improvements, so as to enhance employees' experience and satisfaction. In 2022, the Company introduced Gallup as a third-party organization to conduct a web-based survey of employees worldwide. A total of 8,799 employees participated in the survey, with an overall engagement performance score of 4.18, and a satisfaction score of 4.13 on a 5-point scale.

The Company respects employees' right to establish labor unions on their own initiative and continues to improve the democratic management approach based on labor union consultation. Goldwind Group and its subsidiaries have established labor union committees in accordance with the laws, which perform their duties according to the labor union work system and protect the legitimate rights and interests of employees. The labor union committees negotiate and sign *Collective contracts, Wage agreements, Occupational safety and health agreements* and *Protection of female employees' rights and interests agreements* on behalf of employees, with all agreements being valid and legal, thus effectively safeguarding the legitimate rights and interests of both parties in the labor relations.

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## Employee Health

"Long-term health" is one of the core values of the Company. Taking "employee health" as one of the Group's priorities for sustainable development, the Company continues to carry out a series of work around employees' physical and mental health, helping them establish a healthy mindset, develop optimism, work out for fitness, and handle the pressure in life and work with ease.

### Implementation of Employee Health Management

The Employee Health Management Committee was established to build an employee health management system and to systematically manage employee health. The Company organizes employees to take regular physique checks, and creates health files for all employees to achieve full coverage of health management. Various online and offline health activities and lectures are carried out, such as "Daily Morning Exercise", "21-Day Health Run", "Diet Camp", "100-Day Exercise Clock-in for 1,000 People", "Healthy Kitchen" and "Cervical Spondylosis Prevention and Improvement".

### Organization of Sports Club Activities and Events

Various clubs such as ball games, gymnastics and yoga are established, and a team of professional coaches is hired to customize annual plans and provide coaching. The clubs are also open to employees' families. By the end of 2022, the total number of club members exceeded 800, with 5,942 participations in annual activities.

A series of "Windchaser Cup" sports events have been held consecutively for 10 years, featuring a variety of competitive events and fun games for front-line employees, with a scale of 1,000 participants.

### Medical Checkups for All Employees

Cardiovascular and cerebrovascular examinations were included in the basic medical checkup items in 2022, and the employee welfare medical checkup packages were upgraded to flexible packages (CT/thyroid/cancer screening packages); the basic medical checkups were combined with occupational health checkups, and exclusive medical checkup packages were customized for front-line employees working in the plateau and coastal areas.

### Improvement of Physical and Mental Health through Music

Dance, piano, and choir clubs are set up for employees to facilitate their musical learning, communication, and creative display. In 2022, the music festival "Blooming" was held in the format of live-streaming for the first time on TikTok due to the epidemic, with 17,856 live viewers and 180,000+ likes.

### Mental Health Care for Employees

The Company cares about employees' mental health and carries out EAP mental health protection projects including mental health consultation, mental health examination and mini online psychological classes.


Training Camp for Muscle Building and Fat Loss


"Blooming" Music Festival


Windchaser Cup 10th Anniversary Series - Swimming


Goldwind Americas WRISERooftopYoga

## Employee Welfare

Valuing humanistic care, the Company has established a complete welfare security system to provide rich and diversified welfare security for all employees, and offer as much help as possible for employees' personal and family life, so as to facilitate their work and life, and enable them to devote more passionately to their work and life.

| **Childcare and Sports Training for Employees** | **Individual and Family Health Insurance for Employees** | **Accommodation and Commuting of Employees** |
|---|---|---|
| To address employees' problems of not being able to take care of their children after school and during summer and winter vacations due to work, the Company provides long-term daily after-school care and full-day care services for employees' children during winter and summer. During the care period, these children may participate in sports, art and physical intelligence courses to develop their hobbies and strengthen their physical fitness. | To alleviate employees' family medical burden, the Company continued to provide "1+1+1 Health" commercial insurance coverage in 2022 to provide all employees and their families with a comprehensive, multi-level healthcare protection system, covering employees' spouses, children and parents, and providing diversified health management services. | To solve the housing problem of employees who travel to Beijing for a short period of time or transfer to Beijing for the first time, the Company provides travel housing and one-year transitional housing apartments; public rental housing is offered to employees with stable employment. As of the end of 2022, the Company has 325 sets of public rental housing at its Beijing headquarters, with 100% utilization rate. In terms of commuting, 16 commuter shuttles are operated at the Beijing headquarters to meet the commuting needs of employees. |

| **Annual Cultural Benefits Distribution** | **Open Family Week** | **Offer holiday gifts** |
|---|---|---|
| Cultural benefits distribution activities are organized every year to distribute cultural benefits to all employees, convey cultural concepts and express corporate care. One cultural benefits distribution was organized in 2022 to provide employees with a diverse selection of product benefits in the form of 33 physical products, 3 vouchers for the park's vendors and 2 health check-up packages. | Families of employees are invited to visit the Company every year for open day activities. The Company invited the families of outstanding employees and front-line key workers to Beijing to attend the Goldwind Open Day + a day trip to Beijing, to gain a more in-depth experience of Goldwind's health culture. Open Week activities were held for the children of employees in Beijing, with three themed activity days for children, sports and art. A total of 43 families participated in the Open Day and 114 children of employees joined the Open Week. | In overseas business operations, the Company respects the differences in life and work arising from different religions and cultures, and makes targeted adjustments to work while preparing gifts for employees, so as to boost mutual friendship and trust. During Ramadan in Pakistan, the project team worked out the work schedule with local employees; during the Kurban Festival in Turkey, the project team bought mutton for local employees to express their blessings. |


Open Family Week


Full-time Summer Care for Employees' Children

# Harmonious Community Relations

In carrying out its business operations, Goldwind engages in the development of the communities where it operates with the concept and approach of sustainable development, leverages its own business advantages and resources, and cooperates extensively to provide development opportunities and improve the surrounding environment, so that community stakeholders may benefit from the Company's business operations.

Xinjiang Goldwind Science & Technology Co.,Ltd. 2022 Sustainability Report

Sustainable Development Management | Honest and Compliant Operations | Green and Environment-friendly Operations | Sustainable Industry Chain | Fair and Sound Working Environment | **Harmonious Community Relations**

# Engaging in Community Development

Dedicated to community development, the Company focuses on communication with the communities around project sites to protect the rights and interests of community residents. It supports the economic and cultural construction ofcommunities, helps improve the living environment of people around the Company's business sites, and offers more learning and working opportunities.

During the development and construction of domestic wind farms, the Company has established such systems as *Management measures for environmental and social risk evaluation and action planning, Management measures for cultural heritage, Management measures for ethnic minority affairs,* and Management Measures for Stakeholder Consultation and Participation, stipulating the principles governing the business operation activities of wind power projects and establishing a working mechanism for communication, consultation and engagement with stakeholders such as community residents and government agencies, so as to achieve joint development of business and local communities.

During the construction and operation of wind farms and water plants, the Company keeps in communication with local governments, community residents and other partners, communicating the latest progress of projects, and collecting and responding to the requests of all parties. It takes the initiative to help neighboring communities where the projects are located to solve their living problems, improve their quality of life, provide living convenience and create job development opportunities. For example, it helps remote village and town communities build roads and bridges to facilitate community transportation while accommodating project transportation needs; it helps repair canals and cultivate land to improve local living and production conditions; it helps villages and towns build distributed new energy sources to solve the problem of difficult access to electricity for residents; it provides jobs for local residents, employing local people as operation and maintenance workers, drivers, and cooks, for example, to raise their income.

With regard to communication with the public, the Company welcomes community members to visit the Company, to learn about its business, deepen their understanding of renewable energy and build awareness of sustainable development. An exhibition center has been set up for external visitors to learn about the Company's developments and knowledge about renewable energy, and science popularization activities such as lectures are regularly held. For instance, the Company's sewage plant regularly conducts environmental education activities for university faculty and students, government departments, political and corporate associations, environmental protection volunteers and local communities, so that participants can understand the urban sewage and waste treatment process and strengthen environmental awareness.

### Supporting Beijing Livat Shopping Center in energy saving and carbon reduction management, with science popularization campaigns

In 2022, Goldwind deployed the Goldwind Energy Carbon Platform for Beijing Livat Shopping Center to help it achieve energy saving and carbon reduction visualization and unified management. Moreover, Goldwind assisted it in using green power in 100% of its public areas and over 60% of its tenant areas, reducing $CO_2$ emissions by about 20,000 tons. In collaboration with Beijing Livat Shopping Center, Goldwind launched the Low-Carbon Shopping Campaign, a cross-sector public welfare campaign. Volunteers from both sides promoted green power knowledge, sustainable development concepts and low-carbon lifestyles for customers and tenants through street filming and interviews as well as the distribution of science books. A number of Goldwind upstream and downstream partners joined the volunteers after seeing the exhibition booth, helping introduce and promote knowledge on green and low-carbon development.


Volunteers carry out science popularization activities

# Supporting Education

Goldwind fully understands that education is the fundamental path for innovative talent cultivation and a vital foundation for the development of the wind power industry. As a leading company in new energy in China, the Company is committed to providing intellectual output to society around new energy technologies such as wind power and facilitating accelerated talent development in the industry.

By leveraging its reserves of talents and knowledge in the wind power industry, the Company continues to support the development of vocational education in the wind power industry through developing new energy courses in vocational colleges and universities, nurturing the professional capacity of teaching staff, compiling teaching materials, delivering lessons, and developing an online platform for professional learning to train current students. In addition, it motivates students to learn about renewable energy by awarding scholarships and offering on-site study and discussion opportunities to young people. The Company aims to build at least 10 youth science and technology practicing bases by 2025. As of the end of 2022, three youth science and technology practice bases had been built in Beijing, Xinjiang and Shandong.

Meanwhile, the Company works with external partners to design and develop educational public welfare activities to provide training for rural teachers and promote advanced educational concepts, hence better facilitating the development of rural children.

### The 7th Growth Camp for Rural Teachers in China

In August 2022, Goldwind and Beijing Goldwind Public Welfare Foundation, together with Beijing Normal University Education Foundation, Beijing Yuanshan Public Welfare Foundation and Xinjiang Hongshi Foundation, jointly designed the curriculum and launched the Growth Camp for Rural Teachers in China. Through the online camp for elementary school teachers and the offline camp for preschool teachers, the Growth Camp helped teachers learn more advanced education concepts so that they could better serve the development of rural children. A total of 273 principals and teachers from 17 provinces and autonomous regions participated in the Camp, covering 125 rural schools and kindergartens across China.

### Goldwind Argentina engaged in educational activities on renewable energy in local schools

Goldwind Argentina organized a tour to wind farms for students from schools near the Loma Blanca and Miramar wind farms as part of a classroom discussion on the topic of environmental protection and green energy production. The close-up tour to the facilities allowed the students to get a first-hand understanding of green energy, wind turbine structures, wind power principles and wind farm organization.

### Goldwind Australia's Moorabool wind farm awarded scholarships to local students

Goldwind Australia is proud of its ongoing long-term community partnership programs as it supports the development of wind power in Australia including regional Victoria, where wind energy is a vital and growing industry. In 2022, Goldwind's Moorabool wind farm in Victoria awarded scholarships to five local students in technical and further education for the completion of their studies. The five students expressed their interest and passion for wind energy at the awards event.

Goldwind has been long involved in the development of local communities – for example, Moorabool wind farm's community partnership program has seen more than A$450,000 provided to support local activities.


Group photo of the Head of Goldwind Australia and some scholarship recipients

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Sustainable Development Management | Honest and Compliant Operations | Green and Environment-friendly Operations | Sustainable Industry Chain | Fair and Sound Working Environment | **Harmonious Community Relations**

# Promoting Public Health

The Company strives to promote the value of "Long-lasting Health" to the public by sponsoring sports events and donating sports venues for youth, for example, to encourage a healthy life for all and to boost the development of sports education.

From 2017 to 2022, Goldwind cooperated with Beijing Marathon in a variety of activities, from making Beijing Marathon the first marathon in China to use 100% green power, to calling on more marathon lovers to become "green runners", and further to launching green events under "blue water and clear sky". Through the Run for Track public welfare campaign, the Company gives wings to the sports dreams of rural children and passes on the concept of green development and the spirit of sports to more people in society. In 2022, the Company worked with event organizers to make the Beijing Marathon a large-scale international event that achieved 100% green power consumption and carbon neutrality.

At the Goldwind booth during the Beijing Marathon Expo, runners were not only able to take pictures to mark the event and issue a green declaration to the Beijing Marathon, but also to write down their green expectations for the future on a postcard, which would be sent to their future selves.

## Run for Track public welfare campaign - donating plastic tracks for rural elementary school

As a highlight project of Beijing Goldwind Public Welfare Foundation, the Run for Track initiative takes the number of kilometers completed by the Company's running club members within a specified period of time as the basis for donation, with each kilometer of running equaling 1 RMB of donation to the Foundation, all of which is used to build plastic running tracks for rural elementary schools in support of sports development of rural youth.

Supported by various parties, Goldwind joined hands with the Beijing Marathon host, China Athletics Association, and the organizer, China Olympic Road Running (Beijing) Sports Management Co., Ltd., to donate plastic running tracks and related sports facilities for Zhu Yaohuan Primary School in Baohe Township, Wuyang County, Luohe City, Henan Province. On this basis, a long-term partnership between Goldwind's local subsidiary and the school was established to continuously support the school's physical education work and rural revitalization through boosting rural education.

Before the track construction in the rural elementary school

After the track construction in the rural elementary school

# Voluntary Services

Volunteer services are an indispensable source of motivation that enables employees to cultivate indigenous innovation capabilities and promote social innovation. The Company has established and continuously operated the Volunteer Service Association, and regularly organized volunteers to participate in public welfare activities, encouraging and supporting employees to contribute their knowledge and skills in volunteer services.

To establish and improve the volunteer management system, the Company has formulated the Volunteer management system, and implemented relevant management for the registered volunteers. In 2022, the Company and the Foundation reasonably deployed volunteer resources for various public welfare and volunteer work, and organized 3 special training sessions to improve the professional level of volunteers. As of the end of 2022, the Company recorded 3,397 registered volunteers, 1,228 participants in annual volunteer activities and 5,840 hours of volunteer service.

**3,397**
Registered volunteers

> **1,228** person-time
Participants in annual volunteer activities

> **5,840**
Volunteer service hours

Since the Company initiated and funded the establishment of Beijing Goldwind Public Welfare Foundation in 2019, the Foundation has carried out internal governance, public welfare projects, volunteer services, financial statements, and information disclosure in accordance with relevant laws and regulations such as the *Charity law and the Regulations on the administration of foundations*.

Mainly to fund education for children in remote areas

In 2022, the Foundation spent over RMB 3.4 million on public welfare projects

Preserve biodiversity

Improve rural infrastructure and living environment of residents

Purify water resources and subsidize pandemic relief

## Wind power-themed creative painting contest for children on the Global Wind Day 2022

On the Global Wind Day on June 15, 2022, the company associates, with numerous external organizations, media, universities and public welfare organizations, organized the Children Under the Blue Sky, Zero-Carbon to the Future - Wind power-themed creative painting contest. Children freely exerted their wild imagination to depict the colorful green and low-carbon world under wind turbines on the canvas, expressing their good wishes for the future life.

Winning entry 1

Winning entry 2

# Prospect

With the progressive strengthening of global support for renewable energy and the gradual acceleration of the transformation of the energy structure, the development of low-carbon energy resources sees great opportunities across the globe. As one of the main players in the global response to climate change, wind power is expected to play a key role in supplying clean energy.

Goldwind takes "Innovating for a brighter tomorrow" as its mission, and practices sustainable development consistently. On the road towards sustainable development, we will adhere to the business ethics of integrity and compliance, stick to the green and low-carbon development path, advocate the establishment of sustainable concepts throughout the industry chain, foster a fair and sound working environment, and forge harmonious community relations.

Sustainable development requires joint cooperation among all parties. Building on our past achievements and experiences, we will continue to innovate, and promote the sustainable development of our own business operations as well as the entire industrial chain, so as to build a "sustainable and better" future.

# Sustainability Data

## Economic Performance

| Indicator[11] | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Total asset value | RMB 100 million | 1,368.22 | 1,196.65 | 1,091.54 |
| Revenue | RMB 100 million | 464.37 | 509.01 | 562.80 |
| Net Income Attributable to Shareholders | RMB 100 million | 23.83 | 37.31 | 29.79 |
| Tax Payments | RMB 100 million | 28.69 | 26.99 | 20.37 |
| Total cumulative installed capacity | GW | 97 | 86 | 73 |

## esearch & Development

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Number of R&D personnel | Person | 3,455 | 3,239 | 2,910 |
| R&D personnel as proportion of total employees | % | 30.85 | 30.04 | 32.49 |
| R&D investment | RMB 100 million | 22.22 | 22.37 | 22.71 |
| R&D investment as a percentage of business revenue | % | 4.78 | 4.42 | 4.04 |
| Total domestic patent applications | Item | 5,469 | 4,896 | 4,486 |
| Total domestically invented patent applications | Item | 3,192 | 2,819 | 2,519 |
| Total domestic patent licenses | Item | 3,918 | 3,429 | 3,100 |
| Total domestically invented patent licenses | Item | 1,737 | 1,446 | 1,257 |
| Total overseas patent applications | Item | 1,066 | 713 | 662 |
| Total overseas patent licenses | Item | 467 | 317 | 228 |
| Domestic standard-settings participated | Item | 361 | 284 | 230 |
| International standard-settings participated | Item | 31 | 31 | 16 |

## Environmental Management

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Total electricity consumption | 100 million kWh | 6.87 | 5.87 | 4.88 |
| Self-generated electricity consumption of wind and solar | 100 million kWh | 3.64 | 3.14 | 3.08 |
| Gasoline consumption | kL | 2,958.10 | 2,554.30 | 2,154.38 |
| Diesel consumption | kL | 1,648.69 | 1,651.56 | 2,555.19 |
| LPG consumption | ton | 160.36 | 107.77 | 21.92 |
| Natural gas consumption | 10k m$^3$ | 77.86 | 84.67 | 48.61 |
| Water consumption | 10k ton | 82.85 | 76.85 | 47.82 |
| Water consumption per capita | on/capita | 55.81 | 57.23 | 53.33 |
| Density of water consumption for production | ton/ thousand tons of water treatment capacity | 0.70 | 0.72 | 0.66 |
| Overall energy consumption per RMB 10K revenue | ton of standard coal/ RMB 10k | 0.0198 | 0.0152 | 0.0118 |
| Packaging material of wood | ton | 887.21 | 1283.54 | 3199.57 |
| Density of wood packaging usage | ton/pc | 0.28 | 0.45 | 0.67 |
| Hazardous  wastes | ton | 73.95 | 73.24 | 103.74 |
| Non-hazardous waste-Construction waste | ton | 397.89 | 1,231.17 | 826.68 |
| Greenhouse gas emissions | ton $CO_2$e | 19,997.28 | 220,569.04 | 185,030.67 |
| Scope 1 | ton $CO_2$e | 18,746.01 | 17,481.36 | 32,728.24 |
| Scope 2 | ton $CO_2$e | 1,251.27 | 203,087.68 | 152,302.43 |
| Hazardous wastes generated per MW of WTG manufactured | ton/MW | 0.0067 | 0.0071 | 0.0082 |
| GHG emissions per RMB 10k revenue | ton $CO_2$e/RMB 10k | 0.0043 | 0.0433 | 0.0329 |

[11] In 2020 and 2021, total asset value, revenue, and net income attributable to shareholders changed due to retroactive adjustment.

## Staff Structure

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Total number of employees | Person | 11,200 | 10,781 | 8,956 |
| By employment | | | | |
| Full-time | Person | 11,200 | 10,781 | 8,956 |
| Part-time | Person | 173 | 146 | 146 |
| By gender | | | | |
| Male | Person | 8,927 | 8,603 | 7,006 |
| Female | Person | 2,273 | 2,178 | 1,950 |
| By age | | | | |
| Aged 29 or under | Person | 2,814 | 2,773 | 2,203 |
| Aged 30-39 | Person | 6,394 | 6,179 | 5,336 |
| Aged 40-49 | Person | 1,679 | 1,403 | 1,043 |
| Aged 50 or above | Person | 313 | 426 | 374 |
| By region | | | | |
| China | Person | 10,188 | 9,801 | 8,086 |
| Other Asian countries | Person | 106 | 93 | 56 |
| Europe | Person | 404 | 399 | 382 |
| North America | Person | 99 | 111 | 72 |
| South America | Person | 178 | 152 | 112 |
| Oceania | Person | 199 | 198 | 217 |
| Africa | Person | 26 | 27 | 31 |
| By specialization | | | | |
| Production staff | Person | 1,634 | 1,831 | 1,362 |
| Sales staff | Person | 1,324 | 1,213 | 888 |
| Technical staff | Person | 3,455 | 3,239 | 2,910 |
| Customer service staff | Person | 2,364 | 2,236 | 1,714 |
| Administrative staff | Person | 2,423 | 2,262 | 2,082 |
| By educational level | | | | |
| Postgraduate or above | Person | 2,502 | 2,409 | 2,078 |
| Undergraduate | Person | 6,302 | 5,966 | 4,696 |
| College or below | Person | 2,396 | 2,406 | 2,182 |

## Equal Opportunities and Recruitment Compliance

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Labor contracts signing rate | % | 100 | 100 | 100 |
| Social insurance coverage percentage | % | 100 | 100 | 100 |
| Female management staff | Person(%) | 94（18.76） | 90（21.13） | 81（20.15） |
| Employees with disabilities | Person(%) | 73（0.65） | 71（0.66） | 62（0.69） |
| Ethnic minorities | Person(%) | 577（5.15） | 512（4.75） | 456（5.09） |
| Foreign staff | Person(%) | 1012（9） | 980（9.09） | 834（9.31） |
| Annual paid vacation per capita | Day | 9.88 | 9.86 | 9.84 |

## Staff Turnover Rate

| Indicator | Unit | 2022 | 2021 | 2020 |
|---|---|---|---|---|
| Staff turnover rate | % | 12.56 | 11.19 | 11.74 |
| By gender | | | | |
| Male | % | 12.05 | 11.63 | 8.55 |
| Female | % | 11.81 | 11.64 | 12.58 |
| By age | | | | |
| Aged 29 or under | % | 14.23 | 13.11 | 15.67 |
| Aged 30-39 | % | 11.94 | 11.10 | 12.24 |
| Aged 40-49 | % | 8.45 | 8.20 | 11.30 |
| Aged 50 or above | % | 9.45 | 11.52 | 10.11 |
| By region | | | | |
| China | % | 12.24 | 11.41 | 12.02 |
| Other Asian countries | % | 7.29 | 7.22 | 16.67 |
| Europe | % | 10.71 | 1.49 | 1.04 |
| North America | % | 18.10 | 3.16 | 2.70 |
| South America | % | 9.09 | 10.63 | 8.26 |
| Oceania | % | 27.92 | 22.98 | 20.52 |
| Africa | % | 18.87 | 34.89 | 8.82 |

## Staff Training

| Indicator | Unit | 2022 | 2021 | 2020 |
| --- | --- | --- | --- | --- |
| Training hours | Hour | 46 | 35.70 | 32.31 |
| By staff level | | | | |
| Senior management | Hour | 23.3 | 21.90 | 16.91 |
| Middle & lower management | Hour | 29.8 | 26.00 | 25.78 |
| Junior staff | Hour | 47.6 | 36.30 | 32.74 |
| By gender | | | | |
| Male | Hour | 52.9 | 38.90 | 35.81 |
| Famale | Hour | 20.1 | 23.00 | 18.57 |
| Ratio of staff having received training | % | 99.1 | 93.00 | 80.70 |
| By staff level | | | | |
| Senior management | % | 100 | 92.10 | 72.03 |
| Middle & lower management | % | 99.1 | 92.70 | 79.32 |
| Junior staff | % | 99 | 92.60 | 80.83 |
| By gender | | | | |
| Male | % | 99.2 | 88.00 | 80.13 |
| Famale | % | 98.6 | 93.70 | 80.85 |

## Occupational Health & Safety

| Indicator | Unit | 2022 | 2021 | 2020 |
| --- | --- | --- | --- | --- |
| Occupational disease | Times | 0 | 0 | 0 |
| Major safety incidents | Times | 0 | 0 | 0 |
| Casualties due to work accidents | Person | 1 | 2 | 0 |
| Working day loss due to occupational injuries | Day | 213 | 578 | 106 |
| Safety training sessions | Hour | 388,547 | 354,931 | 354,916 |
| By category | | | | |
| Special operation staff | Hour | 24,514 | 12,869 | 48,239 |
| Safety management staff | Hour | 11,127 | 17,085 | 8,864 |
| Frontline operators | Hour | 290,945 | 241,799 | 273,995 |
| New employees | Hour | 53,106 | 71,790 | 8,373 |
| Persons in charge | Hour | 10,767 | 11,389 | 15,445 |

## Supply Chain Management

| Indicator | Unit | 2022 | 2021 | 2020 |
| --- | --- | --- | --- | --- |
| Number of major suppliers | Company | 374 | 355 | 352 |
| By region | | | | |
| China | Company | 318 | 295 | 283 |
| Other Asian countries | Company | 5 | 6 | 6 |
| Europe | Company | 42 | 44 | 52 |
| North America | Company | 9 | 10 | 11 |

## Community Charity

| Indicator | Unit | 2022 | 2021 | 2020 |
| --- | --- | --- | --- | --- |
| Total charity donations | RMB 10k | 988 | 978 | 607 |
| The number of volunteers | Person | 3,397 | 2,082 | 1,573 |
| Volunteers served hours | Hour | 5,840 | 2,284 | 8,600 |

# Independent Assurance Statement

To the Board of Directors of Xinjiang Goldwind Science & Technology Co., Ltd.:

SWCS Corporate Services Group (Hong Kong) Limited ("SWCS", "we") has been engaged by Xinjiang Goldwind Science & Technology Co., Ltd. ("Goldwind") to conduct an independent limited assurance ("Assurance Engagement") on the information and data disclosed in the *2022 Sustainability Report* (the "Report") of Goldwind. SWCS conducted the Assurance Engagement on the Report of Goldwind in accordance with the *AA1000 AccountAbility Assurance Standard v3* ("AA1000AS v3"). Moreover, SWCS has also been engaged to conduct the Assurance Engagement on the reliability and accuracy of selected performance indicators disclosed in the Report.

## I. Independence and Competence

SWCS was not involved in collecting and calculating data involved in the Report, or in the development of the Report. SWCS's activities are independent of Goldwind. There is no relationship between Goldwind and SWCS beyond the contractual agreement for providing this Assurance Engagement. SWCS has been recognized by AccountAbility. The assurance team of SWCS has extensive experience in the industry and has received professional training of standards related to sustainable development, including the Global Reporting Initiative Standards (GRI Standards), the AA1000AS v3, the Environmental, Social and Governance Reporting Guide ("ESG Guide") issued by the Stock Exchange of Hong Kong Ltd. ("the Stock Exchange"), etc. The assurance team has sufficient understanding and capabilities of implementation of the AA1000 v3, and the Assurance Engagement related to sustainable development issues is carried out in line with SWCS's internal assurance protocol.

## II. Goldwind's Responsibilities

| Scope | Indicators | Type of Information |
|---|---|---|
| Social | In 2022, the company did not discover any incidents related to child labor, forced labor, bonded labor or human trafficking etc. | Qualitative |
| | Customer satisfaction score | Quantitative |
| | Passing rate of social responsibility audits of suppliers | Quantitative |

SWCS's assurance work was with respect to the information from 1 January 2022 to 31 December 2022. We do not express any conclusions on any information that falls outside this period or any other data disclosed in the Report not included within the assurance scope. The scope of the Assurance Engagement is based on and confined to the information provided by Goldwind. Any queries regarding the content or related matters within this assurance statement should be addressed to Goldwind only.

Goldwind is responsible for the preparation and presentation of the Report in accordance with the ESG Guide published by the Stock Exchange. Goldwind is also responsible for implementing relevant internal control procedures to ensure that the contents of the Report are free from material misstatement, whether due to fraud or error.

## III. Assurance Provider's Responsibilities

SWCS is responsible for issuing an independent assurance statement to the Board of Directors of Goldwind in accordance with the AA1000AAS v3. This independent assurance statement applies solely to express a conclusion on the assurance work in the specified scope of Goldwind's Report, and does not serve any other intents or purposes. All results of assurance are internally reviewed

by professionals to ensure that methodologies used in the process are sufficiently stringent and transparent.

## IV. Assurance Scope

The scope of the Assurance Engagement does not include Goldwind's suppliers, contractors, and information or data provided by other third parties. A Type 2 Moderate Level of Assurance of the AA1000AS v3 was adopted by SWCS to evaluate the nature and extent of Goldwind's adherence to the four principles (Inclusivity, Materiality, Responsiveness and Impact) in accordance with the AA1000AS v3. The following specific performance indicators disclosed in the Report were agreed between Goldwind and SWCS to be selected for assurance:

## V. Methodology

SWCS conducted Assurance Engagement only within Goldwind's office in Beijing, and the assurance works conducted include:

- Conducting interviews with management and relevant departments that are responsible for collecting data on selected indicators, and documentation reviews;
- Understanding the processes and methods of Goldwind in identifying and collecting feedbacks from stakeholders;

- Assessing whether the reporting approach of the Report has been conducted in line with the principles of Inclusivity, Materiality, Responsiveness and Impact as defined in the AA1000AS v3;

- Reviewing Goldwind's sustainable development management and conducting sampling of selected indicators to understand its management system;

- Conducting random sampling of selected indicator information, assess the reliability of data collection, and understand the management system used to ensure data quality;

- Assessing whether the statement in the Report is consistent with the conclusion;

- Performing other procedures deemed considered necessary.

Assurance work was performed and the conclusions within were based upon the information and data provided by Goldwind to SWCS, and on assumptions that the information provided was complete and accurate.

## VI. Limitations

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability between entities.

## VII. Conclusions

Based on the Report of Goldwind and information provided, nothing has come to our attention that causes us to believe that the Report is not prepared, in all material respects, in accordance with the four principles of AA1000AS v3.

Based on the procedures implemented and the evidences obtained, we have not found anything that put us in doubt of the reliability and accuracy of the selected performance indicators for the Assurance Engagement in the Report.

## VIII. Key Observations

SWCS summarizes key observations of the Report against the principles of Inclusivity, Materiality, Responsiveness and Impact of AA1000AS v3 as follows:

Inclusivity

Goldwind has identified key stakeholders, understood and identified the topics concerned by the stakeholders, as well as collected stakeholders' expectations and key concerns on material issues through telephone communications, on-site surveys and organization of visits and seminars, and negotiated with parties that may be affected by Goldwind's operations. This Report has covered the environmental, social and governance aspects that Goldwind and its stakeholders are concerned about, and has collected views from key stakeholders to assist in reviewing the applicability of identified material issues. In our professional opinion, Goldwind adheres to the Principle of Inclusivity.

Materiality

Goldwind has continuously collected, considered and analyzed comprehensive and balanced information, and continuously monitored the changes in the market and business environment through the establishment of a stable risk management structure and work systems, which helps Goldwind understand the needs, benefits and priorities of their own business and their stakeholders. Goldwind has also identified issues that are material to the Company and stakeholders based on the materiality assessment, and incorporated the results into sustainable development strategic planning, ensuring that the necessary capacity and resources are provided to apply the results of the materiality assessment, with the Board of Directors overseeing and determining the Company's overall approach to sustainability and ensuring the work focuses are in line with the material issues concerned by the stakeholders. In our professional opinion, Goldwind adheres to the Principle of Materiality.

Responsiveness

Goldwind has established channels for its stakeholders to collect their views on material issues, and has developed relevant mechanisms or measures to respond to material issues. Goldwind identifies key priorities through its sustainable development strategic planning and matches sufficient resources to respond to material topics and their associated impacts and stakeholders in a comprehensive, accurate, timely, objective and well-considered manner. In our professional opinion, Goldwind adheres to the Principle of Responsiveness.

Impact

Goldwind has identified its material impact on operations, and formulated relevant policies to improve its operational impacts on society and the environment through effective communication with stakeholders. For instance, Goldwind measures, evaluates and manages the impacts of its business in the form of product life cycle assessment and improves the impacts through innovative technology development and the optimization of product development and design. In our professional opinion, Goldwind adheres to the Principle of Impact.

SWCS
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## Environmental,Social and Governance Reporting Guide of HKEX

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