BAOSTEEL

2022
Sustainability Report

Baoshan Iron & Steel Co., Ltd.

Creation Beyond Vision

Contents

About the Report

Scope and boundary of the Report

Unless otherwise specified, the Report describes the management and performance achievements in environmental, social, and governance aspects of Baoshan Iron & Steel Co., Ltd. (referred to as "Baoshan Iron & Steel", "Baosteel", the "Company" or "We") and its four manufacturing bases (the Baoshan Base, the Qingshan Base, the Dongshan Base, and the Meishan Base), Huangshi Coated Plate Co., Ltd. (Huangshi Coated Plate) under Baoshan Iron & Steel, Yantai Lubao Steel Pipe Co., Ltd. (Lubao Steel Pipe), Baosteel Nippon Steel Automotive Plate Co., Ltd., Guangzhou JFE Steel Plate Co., Ltd. and Shanghai Baosteel International Economic and Trade Co., Ltd. (Baosteel International). Unless otherwise specified, all currencies mentioned in the Report refer to RMB.

*Note: 1) The "China Baowu", "Group Company", and "Baowu Group" below stand for China Baowu Steel Group Corporation.

2) The Baoshan Base refers to the production and manufacturing base of Baoshan Iron & Steel Co., Ltd. located in Baoshan District, Shanghai. The Qingshan Base refers to Wuhan Iron & Steel Co., Ltd. The Dongshan Base refers to Baosteel Zhanjiang Iron & Steel Co., Ltd. The Meishan Base refers to Shanghai Meishan Iron & Steel Co., Ltd.

In view of the internal organizational structure, management requirements, and internal reporting system, the Company has identified three reporting segments, namely steel manufacturing, processing and distribution, and other segments. The financial data such as operating income in the Report is based on the Company's annual report, while the rest data is mainly based on steel manufacturing as well as processing and distribution.

The following is a summary of the detailed information of segments, including:

Subsidiaries included in each operational segment

(1) Steel manufacturing: the four manufacturing bases, Lubao Steel Pipe, Huangshi Coated Plate, and other steel manufacturing units;

(2) Processing and distribution: Baosteel International, Baosteel America Inc. (Baosteel America), Baosteel Europe GMBH (Baosteel Europe), Baosteel Singapore Pte Ltd (Baosteel Singapore), Baosteel Howa Trading Co., Ltd. (Baosteel Howa), Bao-trans Enterprises Limited (Bao-trans), Baosteel Laser Welding Co., Ltd. (Laser Welding), BGM Co., Ltd., and other trading subsidiaries.

(3) Others: Shanghai Baosight Software Co., Ltd. (Baosight Software), Baowu Carbon Technology Co., Ltd. (Baowu Carbon), and Baowu Group Finance Co., Ltd. (the Finance Company).

Report period

The Report covers the period from January 1, 2022 to December 31, 2022 (referred to as the "reporting period"), with some content dating back to previous years and covering the first quarter of 2023.

Preparation basis

The Report is prepared by reference to the core standards in the Global Reporting Initiative's *Sustainable Development Reporting Standards* (GRI Standards), the *Guidelines for Writing Chinese Corporate Social Responsibility Reports CASS-CSR5.0*, the *Guidelines for Environmental Information Disclosure of Listed Companies on the Shanghai Stock Exchange*, and in response to SDGs, Morgan Stanley's ESG ratings (MSCI ESG ratings), the SASB, and the DJSI.

Data source and reliability assurance

The information and data disclosed in this Report are sourced from statistical reports and official documents of the Company and have been audited by relevant departments. The Company promises that the Report does not involve any false records and misleading statements and will be liable for the authenticity, accuracy and integrity of the content.

Report preparation process

The preparation process of the Report covers establishment of work team, data collection, interviews with and questionnaire inquiry on stakeholders, framework determination, report preparation, report design, review by department and senior leadership, etc.

Confirmation and approval

After confirmation by the management, the Report was approved by the Board of Directors on April 26, 2023.

If you have any question about the Report, please call us or send a letter to us. Contact: Baoshan Iron & Steel Co., Ltd.

No.885 Fujin Road, Baoshan District, Shanghai, China.

Postal code: 201999

Tel.: 0086-21-26643098

Fax: 0086-21-26649109

E-mail: esg@baosteel.com

Meesage from Senior Executives

Chairman of the board

General Manager

In 2022, in view of the speeded up profound changes unseen in a century and the extremely severe industry situation, Baoshan Iron & Steel resolutely implemented the decisions and deployments by the Central Committee of the Communist Party of China, stood up as backbone and contributed to its steel strength in the struggles with courage and resilience.

We are well aware that in this era of great changes, only by constant reform and innovation can we create new opportunities. In order to achieve Baoshan Iron & Steel's historical mission of "achieving high-quality development in the steel industry and being a leader of future steel", we try to shake off shackles and make continuous progress; strengthen green and intelligent manufacturing to advance low-carbon development; assume social responsibilities and optimize corporate governance; deepen the work of environmental, social, and corporate governance (hereinafter referred to as "ESG"), thereby setting a benchmark for the sustainable development of the steel industry.

Honestly lay a solid foundation for governance

As the supreme ESG management organ in the Company, the Board of Directors has established the Strategy, Risk and ESG Committee and the ESG Working Group, aiming to comprehensively achieve strategic decision-making and institutional development for ESG work, and supervise the achievement of goals. During the reporting period, we actively conducted investor communication and updated significant ESG issues based on the stakeholder surveys, which provides our ESG strategic direction. We also kept promoting the construction of integrity, risk control, and information security in enterprise management, and established a comprehensive and effective governance system.

Drive high-quality development with innovation

We adhere to building a strong state-owned enterprise with high-quality products, and constantly increase R&D and innovation investment, deploy key core technologies as well as disruptive, forward-looking, and groundbreaking technologies. We made multiple R&D breakthroughs and received technological progress awards during the reporting period. Centering on the in-depth integration of digital intelligence technology and steel manufacturing, we further advance intelligent manufacturing, comprehensively upgrade to data empowerment, explore the implementation path of digital transformation, and build smart systems and smart bases, in order to enter the intelligent manufacturing 2.0 era.

Undertake the mission of going low-carbon and leading green steel

We shoulder the major mission of green and low-carbon transformation in the steel industry and addressing climate change. On one hand, we strive to create a green manufacturing paradigm centered on promoting Ultimate Energy efficiency, popularizing green energy, and low-carbon metallurgy, to realize green manufacturing. On the other hand, we keep raising the green attributes of our products, evaluate the environmental impact of steel products throughout their lifecycle via a smart carbon data platform, and manufacture the green and low-carbon steel products required for low-carbon social transformation, so as to help green the society. We also carry out low-carbon strategic cooperation with partners and promote ecological prosperity in the low-carbon industry.

Embark on a journey to green development and build an ecological civilization

We persistently manage and optimize multiple indicators such as waste gas emission, solid waste, wastewater emission, water resource, and biological population protection, implement environmental management, focus on pollution prevention and resource recycling, aiming to achieve waste reduction, pollution reduction, and carbon reduction at the same time. During the reporting period, we conducted assessment of water risk and biodiversity, in order to make more contributions to the ecological environment protection at various operating locations and safeguard a common green home.

Unite to strengthen the Company with talent

We adhere to the talent-centric development philosophy in creating a work environment that trusts, respects, treats, and tolerates talented people. We provide systematic support for the co-development of talented persons and the Company in such aspects as protection of employees' rights and interests, salary and benefits, promotion and development, health and safety, and employee care, aiming to further enhance employee's motivation, achieve the sustainable development of fully utilizing talent, and realize the common growth between employees and the Company.

Join hands with peers to achieve common prosperity

We work with various peers in the ecosystem to build a high-quality steel ecosystem. We vigorously implement supplier management, optimize procurement management and the "Sunshine Purchase Index", advance intelligent procurement, and incorporate ESG risk assessment into supply chain management. During the reporting period, we creatively encouraged suppliers to carry out ESG work with a positive incentive evaluation system, kept empowering them, and further promoted the green development of supply chain.

Undertake social responsibilities to realize common prosperity

Baoshan Iron & Steel actively assumes social responsibilities and contributes various charitable donations and charitable events to the society. During the reporting period, we consolidated and expanded the results of poverty eradication, focused on education and support, created a beautiful and high-quality community, took responsibility for people's livelihood development, and strived to create a harmonious society and achieve common prosperity. In response to the guidance on the development of the steel industry, we have renovated industrial sites and realized the integrated "urban steel plant" by creating a corporate industrial cultural landscape.

We have overcome numerous difficulties. Looking ahead, a bright future is on the horizon. Thanks to the efforts of every employee of Baoshan Iron & Steel, we managed to achieve fruitful results in our ESG work over the past year. In the future, Baoshan Iron & Steel will continue to move forward with the belief of sustainable development, unite and work together with all stakeholders to create a brighter future!

Topic

Reshaping the Green Mission of the Steel Industry

Steel is an important cornerstone of the modern industrial civilization of mankind. The sustainable development of the steel industry plays a crucial role in social production and the sound and stable operation of various industries. In China, the carbon emissions from the steel industry account for about 15% of the total domestic carbon emissions, while China's steel production accounts for over 50% of the global steel production. China's steel industry plays an important role in addressing climate change and achieving carbon neutrality nationwide and globally. However, the accumulation and recycling of scrap steel in the whole society are insufficient, and China's steelmaking mainly adopts the blast furnace process that takes coal as the primary fuel and reducing agent. This poses an unprecedented challenge for the steel industry to achieve low-carbon and green transformation.

As a leader in China's steel industry, Baoshan Iron & Steel is committed to reshaping the steel industry with a green and low-carbon development mode as required by assisting the country in achieving the "carbon peaking and carbon neutrality" goals and fulfilling the solemn promise of building a community with a shared future for mankind. This represents our unswerving effort to capture new trends in industry development and adapt to new paradigms in business operations in the future. To this end, adhering to the concept of green manufacturing, green product and green industry of its parent company, China Baowu, Baoshan Iron & Steel will speed up promoting the green and low-carbon metallurgy innovation project, actively explore and obtain the key core technologies of green and low-carbon metallurgy, make use of intelligent manufacturing to achieve extreme efficiency, realize green steel production process and steel product use process, and make positive contributions to building a carbon-neutral society.

2022 was a year full of opportunities and challenges, and the starting point for Baoshan Iron & Steel to embark another journey to green development. In 2022, we constantly implemented green manufacturing, kept optimizing energy management, benchmark the BACT for low carbon emission, and expanded the scale of clean energy use. During the reporting period, Baoshan Iron & Steel started the construction of a million-ton hydrogen-based shaft furnace project, which we regard as a demonstration and landmark project for low-carbon metallurgy in the steel industry. This project is expected to be completed in 2025, and help greatly reduce carbon dioxide emissions when it is put into operation. This will not only add a strong touch of color to Baoshan Iron & Steel's green manufacturing, but also plays a more disruptive role in changing the current steelmaking mode of the steel industry that is mainly based on the blast furnace process as well as achieving green transformation in the industry.

Starting with green manufacturing, Baoshan Iron & Steel regards manufacturing green as its mission and goal in approaching the future. Under the wave of green and low-carbon transformation in the entire society and industry, the downstream industries of the steel industry have undergone particularly significant and profound changes. Due to such changes, the downstream industries have put forward new requirements for the application scenarios and characteristics of steel products. For example, new energy infrastructure industries such as wind power, photovoltaic, and new energy vehicle charging pile greatly demand high-performance thick plate, hot-rolled steel, silicon steel and other steel products. The demand for ultra-high-strength automotive steel plate and high-performance non-oriented silicon steel for drive motors in new energy vehicles is becoming increasingly strong. In order to reduce energy consumption and achieve industrial energy saving and green development, the industrial motor industry has also put forward higher requirements for the performance of silicon steel products used in motors...Seeing these changes, Baoshan Iron & Steel has kept deepening its capacity to provide green products, and developed the 2035 low-carbon and zero-carbon steel product plan, which has achieved initial results. During the reporting period, we released the low-carbon brand BeyondECO ™, including 9 new products that had not been seen in the world thereunder such as the non-oriented silicon steel B30AHV1400M for driving motor of high-efficient new energy vehicles and the super weather-proof steel BWP800 for photovoltaic support, which have been praised by our customers.

We are making a "low-carbon extension" that runs through the upstream and downstream of the steel industry from manufacturing green to green manufacturing, and building a green ecosystem of that aggregates the "low-carbon efforts" of all parties to drive the entire industry to achieve mutual benefit and win-win situation. In order to enhance its green development capabilities and better fulfill the green mission of reshaping the steel industry, Baoshan Iron & Steel remains open in working together with all parties to create an open and transparent international exchange platform, thereby fully exchanging ideas around green and low-carbon processes, green steel product, carbon capture and utilization technologies, and contributing our wisdom and strength. Meanwhile, we also exchange industry insights with outstanding peers and industry experts, carry out strong collaboration and industry-university-institute cooperation, endow steel with new vitality, and work together with the entire industry chain to embrace the trend of industry transformation and move towards a net-zero-carbon future, hoping to create a green industry climate that drives low-carbon development with low-carbon demand.

In the future, Baoshan Iron & Steel will continue to improve its green manufacturing and extend its mission of going low-carbon, so as to create green for customers, build low-carbon ecology for the industry, and contribute our strength to achieving the goal of carbon neutrality!

About Baosteel

Baosteel is committed to creating a cultural concept system of "the Knowledge and Action of Baosteel's personnel" by taking "Becoming the most competitive steel enterprise and listed company with the highest investment value in the world" as its vision, shoulder the mission of "Achieving high-quality development in the steel industry and being a leader of future steel", and adhering to the development path of "Innovation, Coordination, Green, Openness, and Sharing". We will implement our corporate culture, form an innovative development pattern, strive for excellence in benchmarking and defect finding as well as in transformation and innovation, continue to maintain our position in the steel industry that is top-notch at home and leading abroad, and fully undertake our duties in "Strengthening the country".

Vision

To be "the most competitive steel enterprise of the world"

To be "the listed enterprise with the biggest investment value"

Mission

Being the model of the high-quality development of the steel industry

Being the leader of the future steel industry

Values

Integrity

Green

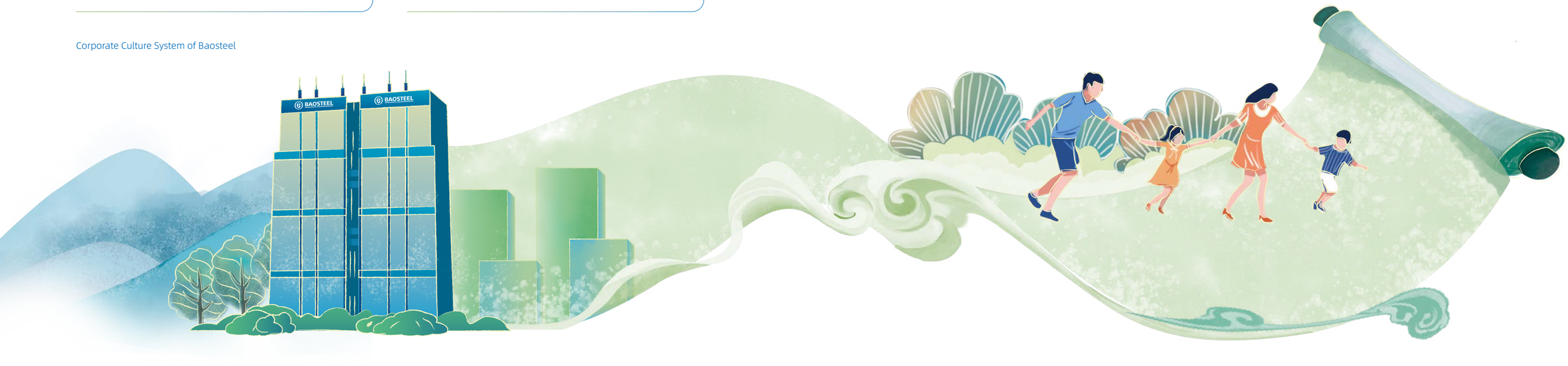
Innovation

Sharing

Cultural cognition

The Knowledge and Action of Baoshan Iron & Steel's personnel

Corporate Culture System of Baosteel



Company profile

Overview

Baoshan Iron & Steel Co., Ltd. is the most modernized super-large steel conglomerate in China and a world-class steel joint venture. Its parent company, China Baowu, was included in the top 50 Fortune Global 500 for the first time in 2022. Baosteel was included in the list of "China's Most Admired Companies" and ranked No.1 in the metal industry. The Company focuses on the steel industry. With Shanghai Baoshan (Baoshan Base), Wuhan Qingshan (Qingshan Base), Zhanjiang Dongshan (Dongshan Base), and Nanjing Meishan (Meishan Base), we are one of the steel enterprises with the most complete variety of carbon steel in the world. With its globally renowned brand, world-class manufacturing level, and service capabilities, Baosteel implements unified management of marketing, procurement, and R&D, striving to create maximum value for the society.

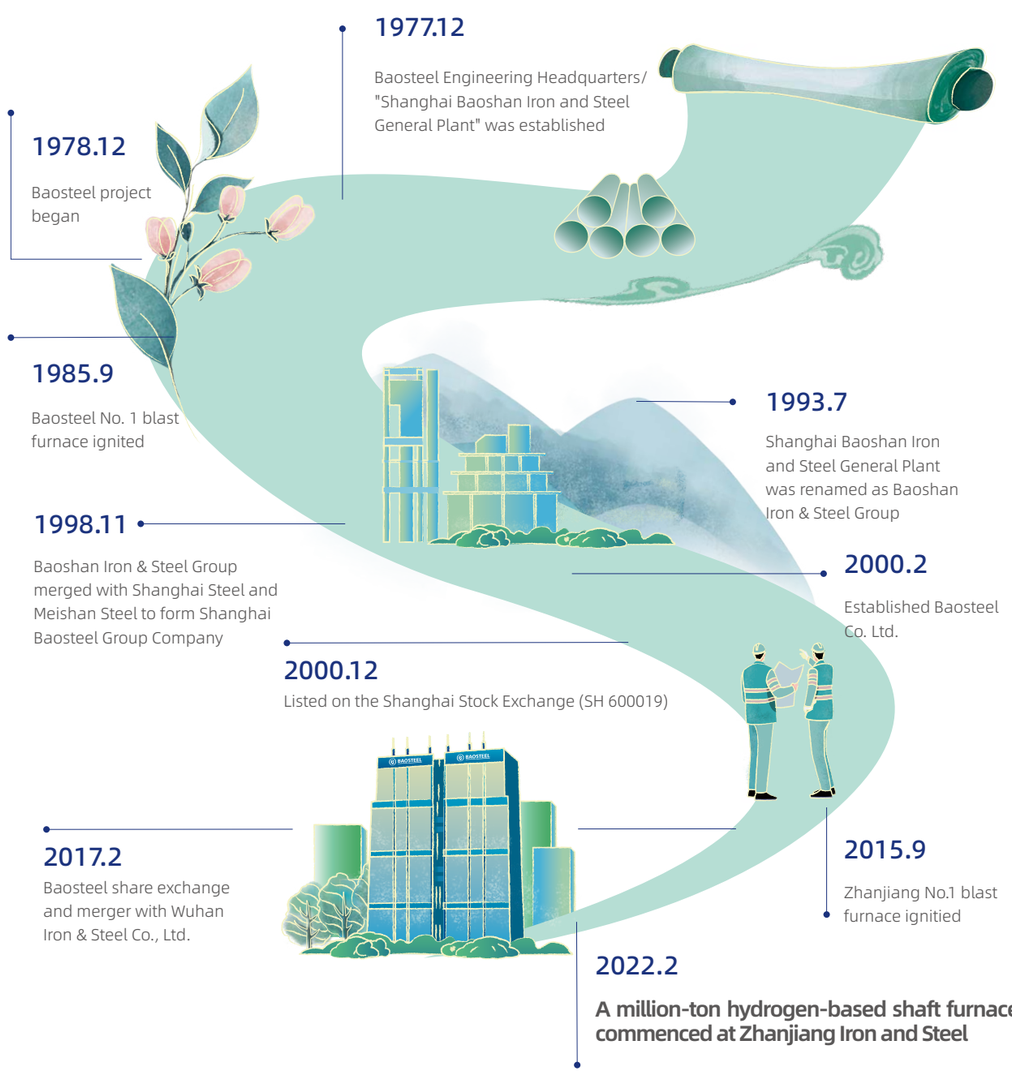
In recent years, the Company pioneered in technological innovation, and focused on tackling the "bottleneck" in terms of key core technologies, creating the source of original technologies, and constructing the first million-ton hydrogen-based shaft furnace in China. We have bravely acted as a leader in the construction of a new modern and low-carbon metallurgical industrial chain, kept an eye on the transformation and upgrading characteristics of the steel industry's "green and low carbon, and intelligent manufacturing", released the near-zero-carbon path of our automotive sheet, launched the smart carbon data platform. As the most trusted value creation partner for customers, the Company focuses on enhancing the synergy of production, sales, and research in an all-round way "from manufacturing to service", and taking solid steps towards "reshaping the green mission of the steel industry".

While achieving high-quality development and stable performance growth, we also inject sustainable development into our driving force, in order to assist in urban transformation and innovation, promote regional ecology co-construction, and create a better urban life. Adhering to the ideas of innovation, coordination, green, openness, and sharing, the Company strives to constantly raise the level of green manufacturing and improve regional environmental quality in view of the current situation of urban resources and environment and the development requirements. We utilize the energy conversion and resource recycling of steel enterprises to actively share technology and resources with cities and assist in the development of urban industries. In addition, we actively undertake corporate social responsibilities, participate in urban philanthropy and community construction, and achieve positive interaction between enterprises and society.

Company history

Baosteel was listed on the Shanghai Stock Exchange in December 2000 (stock code: 600019). It is now an independent and competitive steel conglomerate both at home and abroad. By keeping a firm foothold in the present and making deployments for the future, we firmly embrace the trend of transformation and upgrading in the steel industry, and deeply promote green, intelligent, and global development.

History



1977.12
Baosteel Engineering Headquarters/ "Shanghai Baoshan Iron and Steel General Plant" was established

1978.12
Baosteel project began

1985.9
Baosteel No. 1 blast furnace ignited

1993.7
Shanghai Baoshan Iron and Steel General Plant was renamed as Baoshan Iron & Steel Group

1998.11
Baoshan Iron & Steel Group merged with Shanghai Steel and Meishan Steel to form Shanghai Baosteel Group Company

2000.2
Established Baosteel Co. Ltd.

2000.12
Listed on the Shanghai Stock Exchange (SH 600019)

2015.9
Zhanjiang No.1 blast furnace ignitied

2017.2
Baosteel share exchange and merger with Wuhan Iron & Steel Co., Ltd.

2022.2
A million-ton hydrogen-based shaft furnace commenced at Zhanjiang Iron and Steel

Strategic development

The Company focuses on building core competencies to cope with future challenges, upgrading and implementing a new "1+5" development strategy with "scale + capability", aiming to become a world-class steel enterprise. Centering on the driving force of "scale + capability", we deepen the reform in an all-round way; deepen the management mode of "one company with multiple bases"; adhere to the direction of high-quality development; carry out green transformation, intelligent upgrading, and overseas expansion; keep raising strategic and governance capabilities for the future; and strive to write a new chapter in the new era of steel serving the country and becoming a strong steel country.

Baosteel's "1+5" Development Strategy

Deepen the management mode of "one company with multiple bases"

We adhere to corporate change, keep deepening the construction of the "five centers", the Product Division and the Process Management Department, and strengthening the matrix management model that combines "platform + specialisation "

Deepen product management and create excellent products

Guided by the strategy of "creating products with a production capacity of one million tons, a gross profit of RMB 1,000 per ton, a total gross profit of RMB 1 billion, and a market share of 50%", we strengthen the production-sales-research collaborative mechanism of "service + theater", and continue to promote the development of the "1+1+N" incremental market

Deepen technological leadership and promote innovative leadership

We achieve enterprise development around technological innovation, implement the mission of creating the source of original technology and the chain of low-carbon metallurgical technology, and seek to become leading in technological innovation

Deepen the green and low-carbon transformation and create a global model of green, low-carbon, and waste-free steel plant

We prioritize energy conservation and efficiency improvement, implement energy efficiency benchmarking and pioneering actions, increase efforts in advancing the ideas about ultra-low emission of waste gas, zero wastewater discharge, "solid waste shall be disposed of in the plant", cleaning, greening, beautification, and culture, complete the work of creating A with ultra-low emissions, continue to promote the construction of "waste-free cities" in various regions, strengthen the ecological protection by units along the Yangtze River and the Yellow River, and build the first zero-carbon green demonstration production line for high-end plates in China

Deepen intelligent manufacturing to accelerate digital transformation

Guided by process benchmarks and the promotion of mature technologies, we implement the integration of "one line and one room", speed up the deployment of "Industrial Baoluo Robots", and remain leading in terms of data capitalization rate and intelligent manufacturing index

Improve the efficiency of all elements

We strive to improve manufacturing efficiency, fully unleash scale advantages, keep promoting cost reduction, and raise asset and labor efficiency

Tax strategy

Paying taxes in accordance with the law is the most fundamental social responsibility an enterprise should perform. Baosteel follows the principle of paying taxes in accordance with the law, actively establishes and improves its tax management system according to the *General Principles of Tax Management*, and fulfills corporate tax obligations at home and abroad. We promise:

- We will fulfill tax declaration obligations in accordance with tax laws and carry out work while maintaining a transparent relationship with government authorities;
- The Company's tax information shall be disclosed to the public in a transparent manner. The Financial statements and audit reports shall include information about the Company's deferred income tax assets, liabilities, company taxes, and tax rates.
- We will not exploit tax law differences, loopholes in the international tax system or tax haven to evade taxes, and will not transfer the value we have created to low-tax jurisdictions;
- We will actively comply with the guidance of tax policy, grow the businesses encouraged by the state, and fully enjoy tax preference.

Regarding the transactions with overseas affiliates, the Company shall follow the principles of fairness in the transfer pricing guidelines and relevant national tax regulations. In this case, we will prepare a transfer pricing report to oversee the process.

Organizational structure

The head office of the Company sets up a tax management function to be responsible for the tax management and overall tax risk control of the parent company's legal person, as well as providing tax guidance and consultation for its subsidiaries. Subsidiaries at all levels set up tax management positions to ensure their strict compliance with tax obligations and prevent tax risks.

Institutional construction

The Company has established a tax management system and standards by tax category, as well as tax declaration, invoice management, non-trading foreign exchange payment and other tax payment processes, in order to ensure that its daily tax management work is standardized, orderly, and efficient

Decision support

We intervene in major business activities such as company M&A, overseas business expansion, etc. in advance, evaluate the tax efficiency of investment structure and business operation mode, and provide effective support for the Company's decision-making

Baosteel strictly abides by the *Guidelines for Internal Control of Listed Companies on the Shanghai Stock Exchange*, adopts an internal tax risk management system to control company risks, monitors the areas that may be applicable to the Company and reviews potential risks in advance when the tax law is changed. The Company aims to strike an appropriate balance between risk and return, minimize the negative impact of risk on the Group's operating performance, and maximize the return when the risk is acceptable.

Tax Risk Management System

In addition, Baosteel evaluates the compliance of its daily business activities with relevant national tax regulations and internal tax management policies every year, and rectify the found problems. During the reporting period, the Company did not see any major tax violation.

Awards and honors

Baosteel actively performs its corporate mission and social responsibility, enhances its core competitiveness and international influence by telling the story of China, spreading the voice of China, and promoting value creation. We wish to reflect the China's voice and values and contribute Chinese wisdom to the development of ESG. In January 2022, our parent company, China Baowu, was admitted as a member of the new Charter of Sustainable Development of the World Steel Association (2022-2024) to support the sustainable development of the steel industry.

During the reporting period, Baosteel's performance in ESG received a lot of recognition from all sectors of society thanks to its continuous efforts, including:

Included in Forbes 2022 China's ESG 50

Awarded the title of the Best Listed Company and the Best ESG Practice Award in the 4th Newfortune selection

Awarded the "ESG Golden Bull Award" at the China Social Responsibility 100 Forum - the "Carbon Peaking and Carbon Neutrality" Pioneer

Rated "Excellent" in the "Carbon Peaking and Carbon Neutrality Leadership Ranking of Chinese Listed Companies (2022)" jointly released by *Caijing* and SinoCarbon Innovation & Investment

Awarded the title of China's "Top Runner" carbon peaking industrial enterprise in 2022 by the China Federation of Industrial Economics

Ranked 4th in the "Central SOE ESG · Pioneer 50 Index"; risk management, governance, and social value series were ranked 1st, 5th, and 18th respectively

Awarded the Outstanding IR Enterprise, Innovation Award for Performance Conference, Diligence Award for Performance Conference, and Outstanding Secretary of the Board at the Investor Relations Golden Awards (2021) held by p5w.net

Awarded the outstanding person and outstanding case for 2022 at the Sustainable Development Annual Awards held by Ernst & Young

Zhanjiang Iron & Steel Co., Ltd. was awarded the title of "2022 Key Water Efficiency 'Leader'" by the Ministry of Industry and Information Technology of the People's Republic of China, and the title of "2022 Industrial Wastewater Recycling Pilot Enterprise (Smart Water Pipe Control)" by the Ministry of Industry and Information Technology

01 Integrity

Fortify the Foundation for Governance

- Enterprise governance
- Audit and disciplinary inspection
- ESG management
- Risk management
- Business ethics
- Information security
- Building Integrity
- Investor relationship

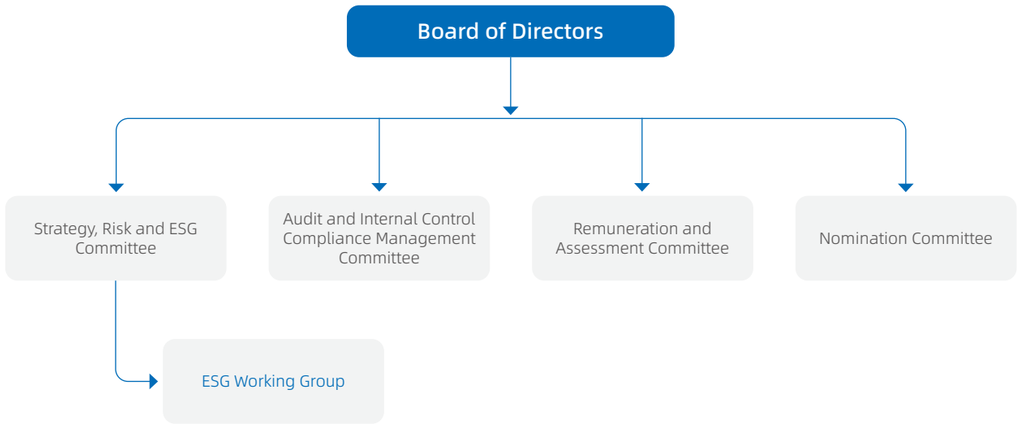
Baosteel adheres to the development path of "Innovation, Coordination, Green, Openness, and Sharing", and has established a governance structure with its characteristics that is in line with the features of the steel industry, supportive to the Company's strategic development, and adaptive to the Company's production and operation. We strictly abide by laws, regulations, and listing management regulations, keep improving our internal control systems and comprehensive risk management system construction, constantly deepen standardized operation, strengthen scientific governance, actively share enterprise development achievements with investors, shareholders, customers, suppliers, and other groups, and effectively improve the quality of our corporate governance.

Enterprise governance

Baosteel vigorously complies with the laws, regulations, and normative documents such as the *Code of Corporate Governance for Listed Companies in China* and the *Guidelines for Investor Relationship Management of Listed Companies* issued by CSRC, as well as the *Guidelines for Self-Regulation of Listed Companies No.1 - Standardized Operation* issued by the Shanghai Stock Exchange. Referring to the practices of excellent peers at home and abroad, we have revised the *Articles of Association, the Rules of Procedure of the Nomination Committee*, the *Rules of Procedure of the Audit and Internal Control Compliance Management Committee*, and the *Measures for Investor Relations Management*, developed the *Authorization Management System of the Board of Directors*, thereby continuously improving our corporate governance system.

We value and diversify our board members, and develop the *Declaration on Diversity and Independence of Board Members* to help achieve strategic goals and sustainable development. The Company considers multiple factors in the election of the board members, including but not limited to gender, age, cultural and educational background, race, professional ability, professional qualification, and professional experience. We tend to evaluate and consider the experience and expertise of candidates to fully leverage the benefits from diversified board members Baosteel is also committed to increasing the proportion of independent directors, female directors, and gender diversity in the Board of Directors. By December 31, 2022, the Company's Board of Directors had a total of 11 directors, of which 5 were independent non-executive directors.

The Company has set up special committees, including the Strategy, Risk and ESG Committee, the Audit and Internal Control Compliance Committee, the Compensation and Assessment Committee and the Nomination Committee, in which the independent directors account for the majority and serve as conveners, in order to ensure our auditing, internal control, and the assessment and appointment of directors and executives are independent and fair. Each special committee fulfills its duties under a limited authorization to ensure orderly and efficient corporate governance.



Baosteel's Governance Structure

ESG management

Baosteel carries out ESG work in a serious and pragmatic manner, continues to make new achievements in sustainable development, adheres to the green development path, strives to build a world-class enterprise, and contributes to the transformation, upgrading, and high-quality development of China's steel industry. We developed the ESG Management Policy as the basic policy during the reporting period, laying the foundation for the Company to continue and deepen its ESG work.

ESG management structure

As the supreme ESG management organ in the Company, the Board of Directors is responsible for supervising and deliberating on the Company's ESG-related risks and objectives annually. The Strategy, Risk and ESG Committee is responsible for developing sustainable development and ESG policies, strategies, and goals for the Company. As the primary coordinating and executing organ, the ESG Working Group is responsible for identifying and monitoring ESG risks during daily operations, tracking ESG performance, and disclosing information about sustainable development. For a detailed scope of duties, please refer to the *Announcement of Baosteel on the Proposal for ESG Governance Structure* (Announcement No.: L 2021-040).

- To deliberate on the risks and importance related to the Company's ESG matters
- To supervise and review the Company's ESG-related policies, management, performance, and target progress
- To deliberate on and approve disclosures of the Company's performance on ESG-related matters
- To deliberate on and review the major negative ESG events of the Company

- To ensure that the Company's stance and performance on global ESG issues are in line with the era and international standards, and formulate and propose updated recommendations for the Company's ESG policies in areas including but not limited to climate change, health and safety, environment, human rights, and anti-corruption
- To provide suggestions for the Company in terms of climate change, greenhouse gas emission reduction, green product, clean and energy-saving technologies, and safe and stable operations
- To conduct research, analysis, and risk assessment on the Company's ESG and other matters, and put forward ESG policies, strategies, and goals
- Organize and coordinate the supervision and inspection of ESG-related policies, management, performance, and target progress of the Company, and put forward corresponding suggestions
- Review and submit the Company's ESG-related reports to the Board of Directors
- To review the achievement of annual environmental and social responsibility as well as ESG performance goals and link them to the performance compensation of the management
- To deliberate on matters related to corporate strategy and ESG

- To develop ESG-related policies and action plans that are in line with the Company's strategies and ESG goals
- To manage ESG-related risks and matters in the daily operation of the Company
- To communicate with relevant departments and subsidiaries of the Company to jointly implement ESG-related matters
- To collect, summarize, and compile disclosures of the Company's performance on ESG-related matters

Baosteel's ESG Management Structure

During the reporting period, the Strategy, Risk and ESG Committee held 2 meetings to review ESG-related proposals, organized sustainable development and ESG work, analyzed ESG risks, and reviewed ESG related policies, regulations, standards, trends, and stakeholder's appeals. We incorporate ESG performance indicators into the incentive and compensation plans for senior executives, and take reward or punishment measures in view of the annual ESG evaluation results.

Communication with stakeholders

Baosteel has set up a regular communication mechanism with stakeholders, aiming to fully understand the importance of each topic to Baosteel and the opinions of various stakeholders on Baosteel's ESG performance in the form of questionnaire and in-depth interview. The Company's key stakeholders are divided into the following eight categories:

Staff	Shareholders, investor and rating agencies	Suppliers, service providers and contractors	Customers
Government departments, regulatory agencies and auditors	Community members, organizations and non- governmental organizations	Industry partners, industry associations, and scientific research institutions	Media

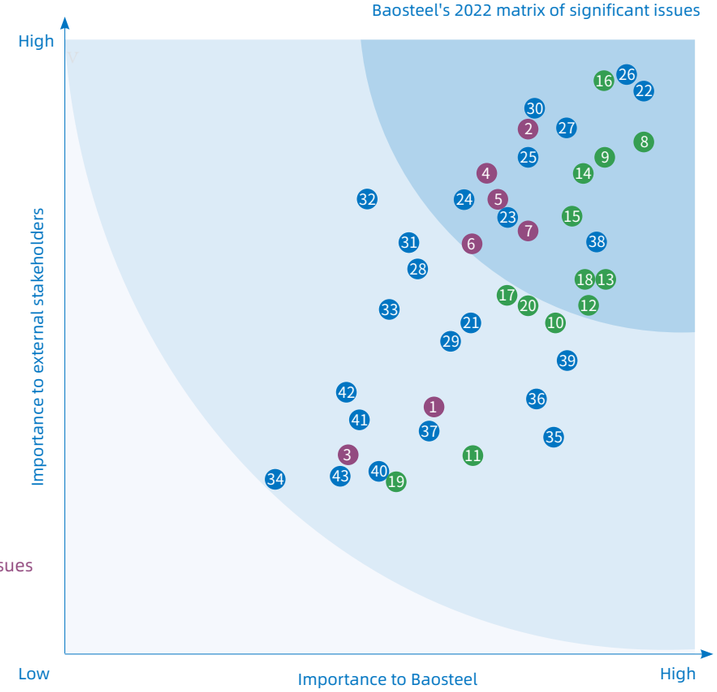
The primary issues of concern to various stakeholders and their communication with the Company are as follows:

Stakeholders	Main concern issues		Communication channels
Staff	Occupational health and safety Talent training and retention Employees rights and benefits	Promotion and development Diversity and equality Employee communication	Employee activities Internal publications (newspaper, magazines) Employee performance appraisal Multimedia (public and other social platforms)
Government departments, regulatory agencies and auditors	Environmental management system Environmental technology research and development Energy efficiency Water use efficiency Waste water disposal	Carbon reduction and carbon neutrality Greenhouse gases emission Air Pollution Waste management Scrap recycling New energy use Biodiversity	Site investigation Meeting
Shareholders, investors and rating agencies	Economic performance and financial performance Risk and crisis management Corporate governance	ESG management system establishment Business ethics Climate change risks and opportunities	General meeting of shareholders Investor meeting Performance conference Press release/announcement Site investigation
Customers	Technology and innovation Product quality and safety Customer service Information security Responsible marketing	Privacy protection Green product research and development Green factory Intellectual property protection	Customer satisfaction survey Customer line Official media platform Customer conference
Community members, organizations and non-governmental organizations	Charity Community participation and integration Fighting COVID-19		Press release/announcement Public welfare undertakings
Suppliers, service providers and contractors	Supply chain cooperationSupplier approval and evaluation Supply Chain ESG Management Conflict minerals		Supplier qualification review Supplier exchange conference
Industry partners, industry associations and scientific research institutions	Win-win industry development Smart manufacturing		Industry association Exhibition
Media	Information disclosure		Media press conference Press release/announcement Official media platform

Significant ESG issues

During the reporting period, in view of the issues of concern to the capital market and industry characteristics, we analyzed important issues, identified, classified, and evaluated ESG issues, identified 21 highly important issues and 22 moderately significant issues, and drew a matrix of important issues. These issues will be disclosed in subsequent sections of the Report in response to stakeholder demands.

Baosteel's 2022 matrix of significant issues



Issue identification	Communication with related parties	Screening and evaluation	Review and confirm
• Understand regulatory guidelines, explore the ESG issues of concern to capital market rating agencies, and synchronize peer benchmarking in view of the issues of concern to external stakeholders • Identify the significant issues that reflect the impact of Baoshan Iron & Steel's business on the economy, environment, and society	• Conduct surveys on key stakeholders such as investor, consumer, supplier, and community • Understand the significant issues of concern to all stakeholders	• Sequence issues in view of their maturity, the attention of relevant parties, and their importance to Baoshan Iron & Steel • Draw a significance matrix and use it to analyze the truly significant issues	• The Board of Directors of Baoshan Iron & Steel confirms the substantive issues to be disclosed and made a report disclosure

Analysis Process of Important ESG Issues

Highly Material Issues

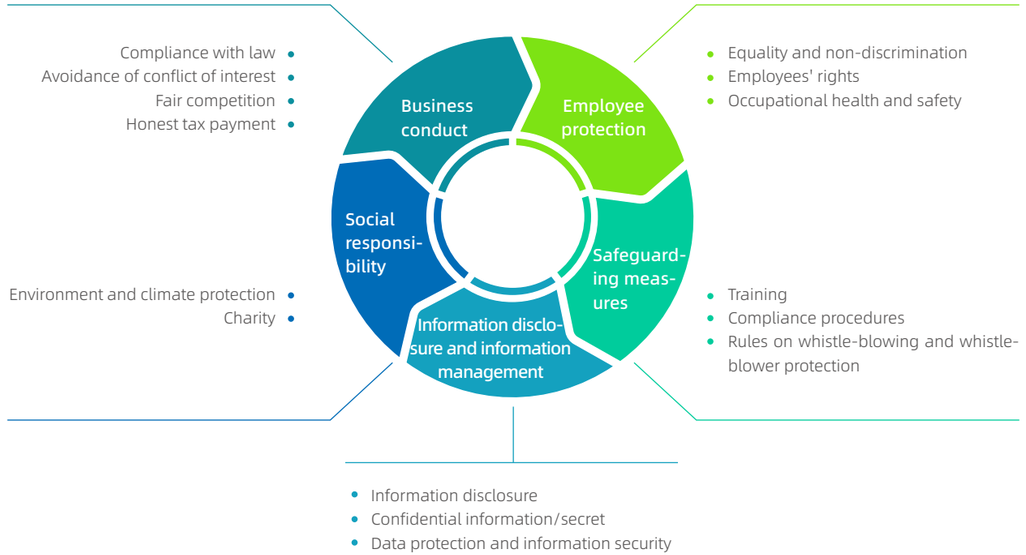
Category	No.	Topics
Economy and governance	2	Corporate Governance
	4	Risk and crisis management
	5	Business ethics
	6	Information disclosure
	7	Information security
Environment	8	Environmental management system
	9	Energy efficiency
	12	Air Pollution
	13	Waste water disposal
	14	Waste management
	15	Greenhouse gases emission
	16	Carbon reduction and carbon neutrality
	18	Green factory
Society	22	Product quality and safety
	23	Customer service
	24	Intellectual property protection
	25	Technology and innovation
	26	Smart manufacturing
	27	Green product development
	30	Win-win industry development
	38	Diversity and equality

Medium Material Issues

Category	No.	Topics
Economy and governance	1	Economic and financial performance
	3	ESG management system establishment
Environment	10	New energy use
	11	Water use efficiency
	17	Climate change risks and opportunities
	19	Biodiversity
	20	Scrap recycling
Society	21	Environmental technology research and development
	28	Responsible marketing
	29	Privacy protection
	31	Supplier approval and evaluation
	32	Supply chain cooperation
	33	Supply Chain ESG Management
	34	Conflict minerals
	35	Employee rights and benefits
	36	Promotion and development
	37	Talent training and retention
	39	Occupational health and safety
	40	Employee communication
	41	Community participation and integration
	42	Charity work
	43	Pandemic control

Business ethics

Baosteel tolerates none of the behaviors that violate business ethics. We have issued the *Code of Conduct of Baosteel* to provide constraints and guidance for our internal and external interactions. The Audit and Internal Control Compliance Management Committee under the Board of Directors is responsible for supervising and managing regulations and behaviors related to business ethics, ensuring that the Company will vigorously perform its social responsibilities in conducting business activities with users, suppliers, employees, the public, and other stakeholders.



Baosteel's Code of Conduct

To enhance employees' and suppliers' awareness and understanding of the code of conduct, we create a culture of honesty and compliance based on the cultural cognition of "the Knowledge and Action of Baosteel's personnel". In 2022, we provided business ethics training for all employees via online training platforms, and training for suppliers to standardize and guide their behaviors in anti-corruption and protection of employees' rights and interests, with a training coverage rate of 100%.

Baosteel respects the principle of market competition, supports and maintains a fair and liberal market competition environment, and opposes any form of unfair competition, monopoly and money laundering. In the past four fiscal years, the Company did not see any fine or settlement related to anti-competition behaviors.

Building Integrity

Baosteel has the awareness of integrity rooted in all its business activities from internal management to external cooperation, keeps improving its Party conduct construction and anti-corruption accountability system construction, and vigorously performs its duties for comprehensive and strict governance of the Party. The Company continues to improve the Party conduct and anti-corruption system. We have developed and revised 10 compliance management policies, such as the *Implementation Measures for the "Three-Importance and One-Major" Decision System of Baosteel* and the *Business Management and Investment Discipline of Baosteel*, in order to make clear the detailed anti-corruption requirements for employees, suppliers, and other business partners, strictly prohibit any form of bribery, and always adhere to our core value of "integrity".

The company advances a mechanism led by the Party Committee, supervised by the Discipline Inspection Commission, with the Secretary of Party Committee serving as the first responsible person, and the members carrying out "one position, two duties". Taking the annual construction of Party conduct and clean governance, as well as the key projects of anti-corruption accountability system as an opportunity, we ensure that the construction of Party conduct and clean governance and the anti-corruption duties are effectively performed carried out via quarterly tracking, regular research, and semi-annual performance reports. During the reporting period, we implemented a total of 32 key projects under the accountability system.

Integrity risk prevention and control

Baosteel has established early warning and prevention mechanisms for integrity risks, and urged business departments to actively carry out prevention and internal control of integrity risks. We have set up a leadership group for smart supervision led by the Secretary of Party Committee, the Chairman, and the General Manager, so as to promote the construction of the Company's big data smart supervision platform. During the reporting period, relying on various business information systems and the existing data resources of the Company, we focused on the key links of integrity risk prevention and control in key business areas such as raw material procurement, marketing, equipment management, remuneration of performance, and business and enterprise running, designed and developed 53 smart supervision models, and established a big data smart supervision platform that integrates "risk data collection, risk assessment, risk management strategy formulation, risk response and resolution, and supervision and improvement", thereby greatly improving the Company's integrity risk prevention and control capabilities and levels.

We also focus on the identification and prevention and control of integrity risk. In 2022, the Company conducted dynamic identification and analysis of integrity risk in key areas such as procurement, sales, and engineering, with 141 key integrity risk points and 374 persons in sensitive positions identified. We also developed risk prevention and control measures, kept improving integrity risk archives, and revised and improved 34 policies, including the *Management System for Raw Material Procurement Bidding and Tendering*. The Company divides the persons in sensitive positions into different layers and categories, and provide them with integrity training on business process, business risk, and risk prevention and control. During the reporting period, Baosteel provided such training for 109 persons.

Construction of an integrity culture

Centering on key areas and links, Baosteel conducts anti-corruption training annually for the board members, the management, all employees, distributors, and suppliers, so as to create an honest business operation environment. After summarizing the practices of integrity culture construction, the Company has developed the *Implementation Measures for Strengthening the Integrity Culture Building in the New Era*, which puts forward 13 key tasks in 3 aspects “consolidating the ideological foundation of integrity culture, enriching the content of integrity culture building, and extending the paths of integrity culture building”. In this way, we advance the construction of an integrity culture.

The Disciplinary Inspection and Supervision Department conducts a comprehensive analysis of problems and clues on a quarterly basis. Thanks to discipline inspection regular meeting platform, 13 typical cases were reported and 45 integrity risks in 8 aspects were alarmed in the reporting period. 10 typical cases were compiled and distributed to expand the scope of integrity training. During the reporting period, the Company conducted forms of integrity education according to the regulations on anti-corruption and bribery, as well as analysis of typical disciplinary cases, with 100% employees covered.

Integrity demonstration commitment

The leaders of Baoshan Iron & Steel have made integrity demonstration commitments. Guided by them 6,246 Party members and cadre, managers, and persons with business disposal rights have made a commitment to job integrity and signed a commitment letter to guide their personal self-discipline.

Integrity interview

In terms of discipline, work style, and performance of duties, we conducted a collective integrity interview with our 24 directly- managed cadres who just took their office in 2022, and had them watch relevant educational videos.

Integrity holiday reminder SMS

We promptly send integrity holiday reminder messages to leaders and cadres during major holidays. In 2022, we organized various Party organizations to carry out 2,333 warning and education sessions and 734 supervision inspections at different levels.

Integrity Culture Month

We stuck to the "Integrity Culture Month" event, and urged the Party organizations at all levels to carry out education on Party rules and disciplines, warning case, and disseminate the culture of integrity for all employees.

We solicited 134 integrity-related videos, calligraphy and painting works and post them on the Wechat Official Account "Baosteel Shuttle", and published the *Integrity Blooms* journal, thereby creating a strong atmosphere of integrity culture.

Integrity Promotion and Training Activity

Baosteel organizes the 18th Annual Conference of the National Seminar on Discipline Inspection and Supervision of Steel Enterprises

In 2022, on the occasion of the successful conclusion of the 20th National Congress of the Communist Party of China, the 18th Annual Conference of the National Seminar on Discipline Inspection and Supervision of Steel Enterprises (hereinafter referred to as the "Seminar") and the Training Conference for Discipline Inspection Cadres of the China Iron and Steel Association were held in Zhanjiang City, Guangdong Province. The conference aimed to improve the ability and level of discipline inspection cadres in steel enterprises and the steel association system to promote the "three non-corruptions", advance the construction of Party conduct and clean governance in the steel industry and the high-quality development of anti-corruption work, and achieve the safe and high-quality development of the steel industry. Baosteel was invited to make a speech with the theme of *Building a Supervision System That Matches the Management Mode of "One Company and Multiple Bases" to Provide Strong Support for the High-quality Development of the Company*.

Of the 4 papers on disciplinary inspection submitted for selection, 1 was given the first prize for excellent paper, 2 were given the second prize, and 1 was given the third prize, effectively raising Baosteel's influence in the industry.

Whistle-blowing and investigation

Baosteel supports and protects the whistle-blowing behaviors of whistleblowers, sets up open, transparent, and unobstructed whistle-blowing channels, and strictly keeps confidential all information providers and the materials provided by them to prevent whistleblowers from being harmed by retaliatory actions. We strive to prevent all employees from improper harm due to expressing concerns or reporting non-compliant or illegal behaviors. Any individual or group who retaliates against the whistleblower will be punished by the Company. We also provide legal aid and support for employees.

If the Company receives a complaint clue or evidence, we will collect and summarize the information as soon as possible and judge its authenticity. Once the violation of disciplines, rules, and laws is verified, we will propose disciplinary suggestions to the persons involved in violation and submit the suspected illegal cases to the legal department.

Audit and disciplinary inspection

Baosteel adheres to the principles of "controlling risks, promoting performance, and strengthening work style", vigorously abides by laws and regulations such as the *Audit Law of the People's Republic of China*, and implements the *Measures for Internal Supervision Consultation of Baosteel*, the *Internal Audit System*, and the *Implementation Rules for Handling Violations* to integrate audit, disciplinary inspection, and cruising inspection forces. The Company has set up an internal audit department that reports directly to the Board of Directors and works under the guidance, supervision and evaluation of the Audit and Internal Control Compliance Management Committee, thereby improving its audit and disciplinary inspection system from top to bottom.

The Disciplinary Inspection and Supervision Department of Baoshan Iron & Steel focuses on key areas and links in carrying out special supervision on risk prevention and control. The Company has supervised and inspected 13 sensitive businesses, including the procurement and use of alloy auxiliary materials, sales of waste and defective materials, and factory management of materials, rectified 271 issues, improved 39 policies, and promoted the rapid start-up of more than 10 automatic sampling projects and random inspection automation projects. As a result, business management systems have been made more rigorous, processes improved, execution more standardized, and supervision much stricter.

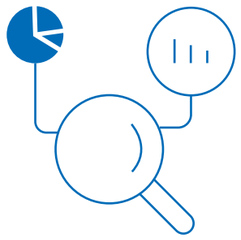
In addition, we have incorporated ESG-related requirements into the Company's internal audit to raise ESG performance. According to the requirements of the Responsible Business alliance (RBA), the Company carries out special audits on social responsibility in terms of environment, health and safety, labor's rights and interests and moral management, so as to ensure that the Company's work environment is safe, respect and dignity for workers, workers are respected, and the business activities comply with environmental and ethical requirements. In 2022, Baosteel's internal audit achieved a coverage of 100% in accordance with relevant provisions, with 100% problems rectified on time.

In 2022, Baosteel's internal audit coverage rate is

100 %

100 %

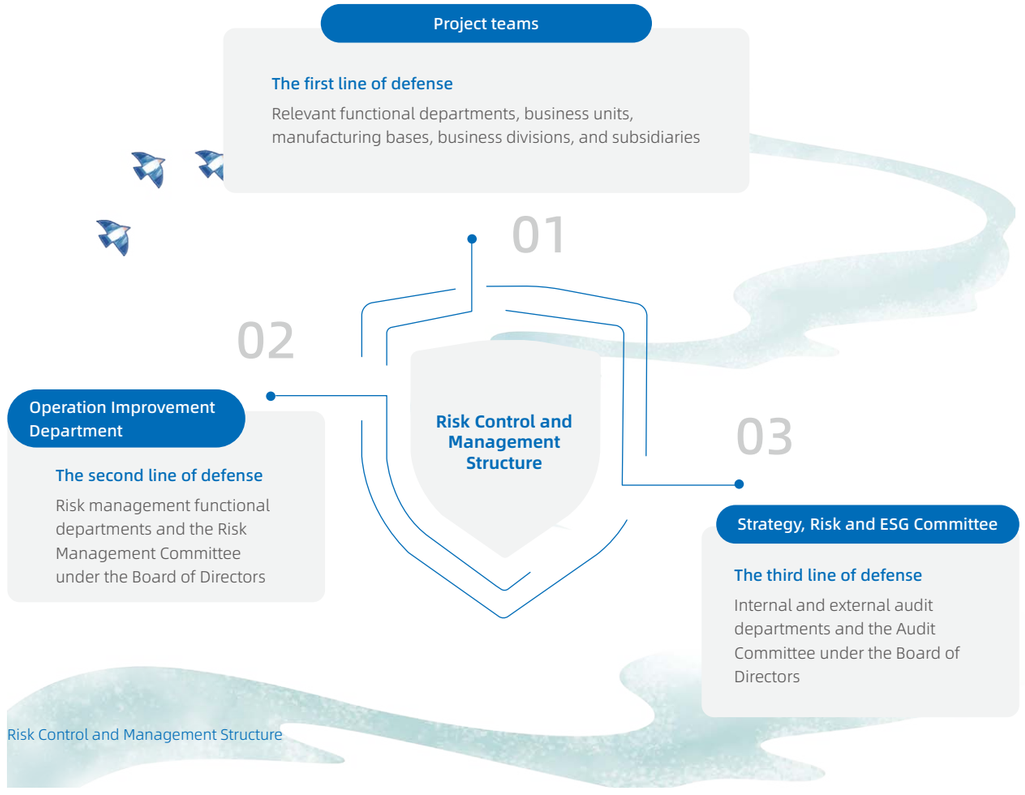
problems were rectified on time



Risk management

Realizing the importance of a sound risk management system for safeguarding the stable, sustainable, and healthy development of an enterprise, Baosteel has formulated the *Comprehensive Risk Management Policy* and the *Key Risk Management Measures*, and improved its risk analysis mechanism, decision-making risk assessment mechanism, risk prevention and control coordination mechanism, and risk prevention and control accountability mechanism, providing a comprehensive management system support for the identification, evaluation, prevention, and control of internal and external risks. We have also developed the *Performance Management Measures for Senior Management Personnel of Baosteel* and other internal policies, incorporated risk management indicators into the performance evaluation of senior management personnel, and provided equity incentives for senior management personnel who have made significant contributions to risk identification and management, thereby creating a culture of responsibility, honesty, and integrity in risk management.

We have established a comprehensive risk management framework, with a three-layer management structure consisting of the Strategy, Risk and ESG Committee, the Operation Improvement Department, and the project teams. We have also set up three lines of control and defense that cover all frontline business departments, risk management functional departments, and internal and external audits. What's more, the Company incorporates ESG risks such as climate change, environmental compliance, and labor management into its existing risk management system, in order to implement the social responsibility as a central state-owned enterprise.



Risk Control and Management Structure

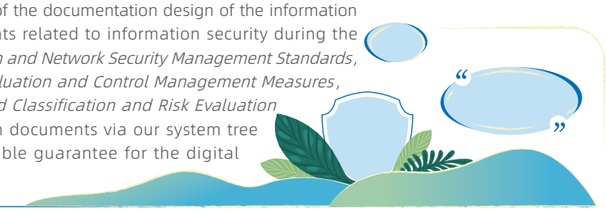
Baosteel has established a comprehensive risk management system to mobilize companywide resources for risk management and control and safeguard its long-term development. We regularly carry out risk identification and assessment work. We have established a comprehensive risk stratification and classification management system and corresponding mechanisms in view of the key risks identified in the risk assessment, and developed risk response strategies and risk management measures in consideration of the classified assessment results and the risk tolerance. The Company has established risk management mechanisms for strategic, financial, market, operational, and legal (compliance) risks, and decided that each manufacturing base and business unit shall be the first responsible person for its own comprehensive risk management.

Risk Management Mechanism

In 2022, we used an intelligent risk management information system with Baosteel's characteristics to identify existing and potential risks, including the risk of bulk raw materials and fuels, the fluctuation risk in carbon steel prices, and the environmental protection risk, and took measures to effectively avoid and control the risks, thereby safeguarding the Company's stable and compliant operation. In addition, the heads of risk management within Baosteel will timely analyze relevant emerging regulations and policies, and conduct annual key training on risk management principles within the Company to ensure compliance with business operations and reduce risks until they are acceptable.

Information security

Baosteel attaches great importance to information security and commercial information protection, and regularly summarizes and updates its management manuals, documents, and standards. In accordance with the requirements of the documentation design of the information security system, we revised 39 policy documents related to information security during the reporting period, including the *Information System and Network Security Management Standards*, *Information System Asset Identification, Risk Evaluation and Control Management Measures*, and *Information System Asset Classification and Classification and Risk Evaluation Calculation Standards*, signed and issued such documents via our system tree management platform, thus providing a reliable guarantee for the digital development of the Company.



In 2022, Baosteel became the first steel enterprise in China to have all its plants pass the certification of ISO/IEC 27001 information security management system, marking Baosteel's compliance with international advanced standards in information security management.

Network and information security management

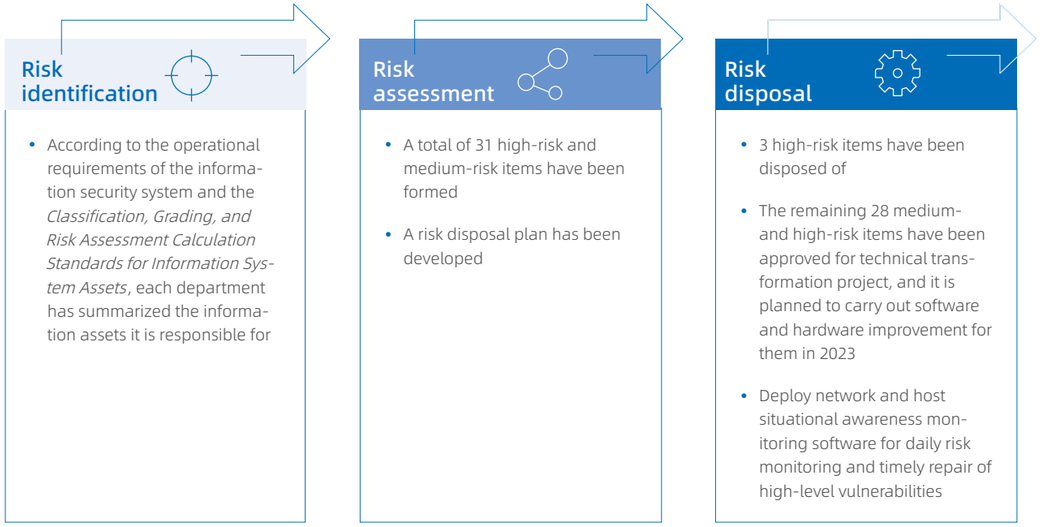
The Board of Directors and management of the Company have always attached great importance to the construction of information security system, and have put forward proposals such as the *Notice on Adjusting the Members, Duties, and Work Responsibility Mechanism of the Company's Network and Information Security Leading Group*, and the *Work on Strengthening the Information Network Security of Baosteel*, and clarified the work requirements for each unit, department, and subsidiary, in order to effectively avoid the risk of data and information leakage.

In terms of organizational structure, Baosteel has set up a network and information security leadership team to be responsible for deliberating on major issues and decisions on the Company's network and information security policies, strategies, plans, and annual plans, as well as handling major issues. The Big Data and Intelligence Department serves as the working office of the Company's network and information security leadership team, and responsible for daily operating and managing the Company's network security, host security, and data security, as well as ensuring the sound and sustainable development of Baosteel's businesses.

In terms of employee awareness training, we actively strengthen their awareness of network and information security, and encourage them to obtain relevant certificates or professional qualifications on project management, information security, databases, etc. During the reporting period, Baosteel's information security training achieved 100% coverage of all employees for them to build a more comprehensive understanding of the specific practices of information security protection in business operations.

Network and information security risk management

Baosteel attaches great importance to information security incident management and business continuity management, and strives to safeguard its core assets and customer information. We develop system documents, establish emergency response mechanisms, and conduct emergency plan drills to effectively reduce the risk of customer interest damage caused by a lack of business continuity. In 2022, we organized drills for the *Emergency Response Plan for Network Security Events and the Emergency Plan for Offline Message Transmission and Disaster Recovery System Activation of the Headquarters Manufacturing Management System*, and determined that the plans were generally effective after a thorough evaluation of the plan content, drill process and drill effect.



Identification, Assessment, and Disposal of Information Security Risks

Baosteel participates in the 2022 network attack and defense drill

The Company takes the promotion of network security guarantee work proposed at the 20th National Congress of the Communist Party of China as an opportunity to further strengthen its response and handling process for network security incidents. have established a network security guarantee sub-command system led by the Chairman and the General Manager, developed a network security guarantee work plan based on the 20th National Congress of the Communist Party of China, set up a drill liaison team and a network security emergency response system, and carried out security risk investigations in an all-round way. In 2022, Baosteel organized a network attack and defense drill. The results showed that the target system and important information systems were not breached.

Information security system certification

To effectively support our intelligent manufacturing development strategy, respond to customer requirements, and effectively identify and control information security risks, Baosteel has introduced the ISO 27001 information security management system standard, accomplished current situation survey, system construction, trial operation and other tasks successively, and conducted two rounds of system promotion and implementation training. At the end of 2022, we obtained the information security management system certification, thus establishing an information security management system with clear policies, complete framework, sound systems, controlled risks, effective operations, and sustainable improvement. As of the end of the reporting period, the Company has obtained ISO/IEC 27001 information security management system certification at a proportion of 29.3%.

During the reporting period, the Company did not have any information security leakage incidents; no customer privacy leakage incidents occurred.


Certificate of Registration

IS 779652

Baosteel's ISO/IEC 27001 Certificate

Investor relationship

Baosteel strengthens the duty of "key minority" as a listed company, and follows the principles of compliance, initiative, honesty and trustworthiness in enhancing communication with investors and potential investors, so as to co-create sustainable values with them. During the reporting period, we made use of communication tools such as new media, the Internet, and telephone to enhance investors' understanding and recognition of listed companies, in order to raise their governance level and overall corporate value.

Investor communication activity	Quantity	Remarks
Performance release	6 times	2 bilingual livestreaming performance press conferences (annual report, Q1 report, and midterm report) 3 online performance briefing meetings (annual report, Q1 report, mid-term report, and Q3 report) 2022 Shanghai Stock Exchange International Investor Conference - international investors enter the listed companies on Shanghai Stock Exchange online
Independent investor exchange conference	2 times	Silicon steel symposium on June 17 Symposium on climate action report on June 30
Strategy meeting of domestic and foreign investment banks and securities firms	47 times	/
Institutional investor telephone conference	41 times	/
Received investors	5 batch/15 persons	/
Roadshow	16 times	14 video roadshows for overseas investors after regular reporting 2 video roadshows for domestic investors
Answered investors' questions	307 questions	307 online questions from investors on Shanghai Stock Exchange's E Interaction and ir.p5w.net were answered
Investor relations questionnaire	60 sets	To collect opinions from the capital market on the steel industry, Baosteel and its investor relations services in 2022. 60 effective questionnaires were collected
External communication	2 times	We participated in the Shanghai Stock Exchange Performance Conference in February and shared our experience as a representative of listed companies We participated in the survey on listed companies by the Investor Protection Bureau of the China Securities Regulatory Commission in August and shared our insights on investor relationship work as one of the 5 invited listed companies

02 Innovation

Drive High-Quality Development

- Quality assurance
- R&D and innovation
- Intelligent manufacturing
- Customer service

Adhering to the quality principle of "user-oriented, innovation-driven, high-quality manufacturing, and continuous improvement", Baosteel keeps improving its product competitiveness and customer service level, and speeds up the transformation of intelligent manufacturing, aiming to become a world-class enterprise with "excellent products, outstanding brands, leading innovation, and modern governance".

Quality guarantee

Baosteel sticks to developing itself with high-quality products and refined management, implements the "quality-above-all" strategy to drive high-quality development, and strives to create products with better quality, higher efficiency, and stronger competitiveness. We are committed to accurately grasping and optimizing the entire product manufacturing process, monitoring and improving key risk points, conducting special quality training, continuously improving product quality, so as to lay a solid foundation for our development.

Quality management system

Baosteel standardizes and controls production and manufacturing in all aspects thanks to a comprehensive quality management system. We have developed 66 internal technical quality management documents, covering the procurement of raw materials, product manufacturing, product testing, and other aspects. During the reporting period, we revised and issued 16 management business summarizing and management policies.

We keep enhancing our quality system by continuously strengthening our application of advanced quality management methods such as excellent performance model, centralized and consistent management, and lean Six Sigma Management. We keep deepening the transformation of process quality management mode from "result control orientation" to "process monitoring orientation", develop key quality defect improvement projects, and establish a key process trend monitoring mechanisms, thereby improving our quality control of manufacturing process in an all-round way and effectively enhancing our basic management from monitoring the process trend, to quickly identifying anomalies, and then to quickly responding and improving.

Meanwhile, we further deepen the management concept of "competition in the market; competitiveness in the field". We have established a quality management inspection mechanism at the operational, departmental, and company levels, and developed a monthly inspection plan that covers important units such as steelmaking, hot rolling, and cold rolling and carries out at least one routine inspection per week. As a result, we have established a comprehensive and effective routine management mechanism.

During the reporting period, all plants of Baosteel obtained the external quality management system certification.

Quality System Certification

Type	Certification
Quality management system	ISO 9001
	IATF 16949[1]

Quality risk control

In 2022, Baosteel focused on shifting quality risk control points forward by controlling quality risks during the contract signing, review, and design processes, that is, consider product characteristics and design in the quality design process in an all-round way. In this way, we managed to reduce quality risks in product design and enhance design prevention capabilities. We adopt a "customized" control process and measures from user identification to user tracking for the identified "four new" businesses (i.e. new user, new use, new requirement, and new production line).

[1]All factories supplying automotive panels are IATF 16949 certified.

Management of the "Four New" Quality Risks

Identification of the "four new"	We manage the links that are involved in high quality risks as well as new user, new use, new requirement, and new production line
Initial product management	For a new product that is used by the user for the first time, we adhere to the implementation of initial product management for rapid user verification to prevent and control batch quality risks
Risk assessment	We have designed dedicated software for risk rating of the "four new" contracts, developed digital rules for rating of contract risks, performed risk ratings on the "four new" contracts from two dimensions: technical risk and management risk, and included them in the daily quality risk control process.

In the process of product manufacturing, we monitor the production process, key quality problems and key process indicators, summarize and track the changes in key indicators, key processes and key improvements. Each manufacturing unit may conduct detailed tracking and analysis of abnormal indicators, and monitor and warn the key indicators, which is conducive to identifying problems and rectifying them. In 2022, the Company actively implemented the "three reductions and two increases"[2] quality management measures. As a result, the occurrence rate of scrap and defective product decreased by 9.6% compared to 2021, the occurrence rate of spot goods decreased by 16.0% year on year, and the manufacturing capacity of key varieties created historical records.

In terms of supply chain, we strictly control product quality from the source, vigorously carry out supplier quality management, and purchase high-quality raw materials. Taking the revision of the annual procurement technical conditions as an opportunity, we optimize the raw material procurement technical conditions, strengthen the management of quality abnormalities in coal and other materials, track and analyze abnormal indicators on a monthly basis, summarize and report quality abnormalities to suppliers on a quarterly basis, and put forward clear quality suggestions and factory quality requirements for suppliers to implement quality control. During the reporting period, the abnormal proportions of iron ore, coal, and by-products were all consistent with the requirements of the annual objectives.

Quality training

Baosteel attaches great importance to the construction of quality culture and conducts quality training to strengthen the quality awareness of all employees, aiming to create a good atmosphere where everyone values quality, pursues quality, and advocates quality.

Key Quality Training Programs

- New PFMEA application training for product and process technicians
- Training on the IATF16949 quality management system standards
- Training on five core tools (APQP-CP application practice)
- Training on basic knowledge related to API certification
- Training on QC080000 standard and internal auditors
- Training on basic knowledge and relevant qualifications of JG quality management system

In September 2022, Baosteel held the "Quality Month" event with the theme of "practicing three cost reductions and two efficiency increases, and continuously improving product management capabilities", aiming to continuously shape a high-quality quality culture for each base with high-quality knowledge, planning and objectives.

[2]The "three reductions", that is, increased production and cost reduction, economic furnace cost reduction, energy saving and carbon reduction, "two increases", that is, differentiated boutique efficiency, steel specialization and integration efficiency.

"Quality Month" Event in the Four Bases

Raise quality awareness:

Carry out the "looking back" event on quality issues to summarize quality cases in recent years in an all-round way, further strengthen the quality awareness of all employees, prevent quality risks, and continuously improve the quality awareness of all employees

Organize all employees to participate in national quality knowledge competitions, which involve the relevant concepts, methods, and tools of comprehensive quality management, as well as other quality management knowledge. As of early October, more than 7,000 employees have participated in the knowledge competitions

Improve production quality:

Organize the evaluation of achievements and excellent suggestions for the "production quality" independent management project, with multiple bases participating, and 10 excellent independent management topics and 12 excellent suggestions selected. We encourage more employees to actively participate in on-site quality improvement and innovation activities via independent management and rational suggestion platforms by commending and promoting the outstanding achievements

Increase service capability:

Conduct on-site interactive exchanges with key users such as Zhengzhou SAIC, Sichuan FAW Toyota, Tianjin Toyota, Tesla, and Chengdu FAW Toyota

Identify quality defect:

Focus on finding defects in the manufacturing process, and set goals to reduce the incidence of scrap and defective product and the occurrence of spot goods

Product quality certification

Baosteel conducts third-party product certification in an orderly manner in view of new market demands at home and abroad. During the reporting period, the Company's relevant products obtained multiple certificates at home and abroad, such as the JIS mark, the API monogram certification, the EU CE certification, the UK-CPR certification, the certification of multiple classification societies, the BIS certification in India, the SNI certification in Indonesia, the SIRIM certification in Malaysia, the TISI certification in Thailand, the SONCAP certification in Nigeria, the special equipment (pressure pipeline components) manufacturing permit in China, and the technical evaluation of steel plates for boilers and pressure vessels.

Product highlights

Guided by vigorous quality management and leading standards, Baosteel fulfills its mission of serving the country with high-quality products and brand strength. Our self-developed new generation of automotive high-strength steel, oriented silicon steel, high-grade home appliance steel, energy marine engineering steel, bridge steel and other high-end products are leading worldwide.

Baosteel's products contribute to the 2022 Beijing Winter Olympics

Baosteel's products contributed to the 2022 Beijing Winter Olympics with its high quality. The National Speed Skating Oval, as a landmark venue in the main competition area of the Beijing Winter Olympics, adopts the largest single-layer bidirectional orthogonal saddle-shaped cable net for its roof in the design, which is made of 60 stable cables and 98 load-bearing cables and demanding for the quality of steel. Baosteel and Juli Sling co-created the first domestically produced high vanadium enclosed rope and applied it to the roof of the National Speed Skating Oval. According to the statistics, Baosteel has provided 500 tons of SWRH72A-82A wire products for the construction of the National Speed Skating Oval, reflecting our competitiveness as a national brand on the world stage.

In 2022, over 50% of our "1+1+N" product groups were sold. High-profit products such as cold-rolled automotive plate, oriented silicon steel, high-grade non-oriented silicon steel for new energy vehicles, and high-quality energy and structural ship mission steel maintained growth. The domestic market share of products like cold-rolled automotive plate and oriented silicon steel remained above 50%.

High-grade non-oriented silicon steel products for new energy vehicles

High-grade non-oriented silicon steel products for new energy vehicles are featured in long manufacturing process, narrow process window, difficult production, for which there are very few enterprises in the world with a stable and large-scale production capacity. Baosteel has a solid foundation in terms of technology and equipment innovation for the high-grade non-oriented silicon steel products for new energy vehicles. We "firmly grasp the core technologies in our hands." Baosteel has solved the universal difficulty of "high-frequency iron loss, magnetic induction, and mechanical strength constraints in non-oriented silicon steel for new energy vehicles" with its non-oriented silicon steel products, and established a complete process system for the non-oriented silicon steel products for new energy vehicles. Currently, our high-grade non-oriented silicon steel products for new energy vehicle take up 22% of the global market. In China, one out of every two new energy vehicles uses our non-oriented silicon steel. We have undoubtedly become the user's first choice.

R&D and innovation

Baosteel strengthens its technological leadership, deepens its technological self-reliance and self-improvement, deploys key core technologies as well as disruptive, forward-looking, and groundbreaking technologies, and strives to create a source of original technologies. In 2022, Baosteel made significant progress in the R&D of new products, with a total R&D expenditure of RMB 17.25 billion, and the unique new trial product ratio reaching 32.15%.

R&D management

By summarizing years of experience in patent protection, relying on its own technological innovation system and research project platforms, Baosteel has developed the *Management Measures for Scientific Research Projects* and established a supporting mechanism for intellectual properties, in order to plan and carry out R&D projects around user requirements, product market development, etc.

Key R&D Work in 2022

Intellectual property pilot project

We actively promote the pilot of intellectual property projects for key products such as automotive plate and silicon steel. We have systematically planned and launched six intellectual property pilot projects.

Breakthroughs in key core technology

A composite steel plate for ice breakers is developed.

Batch supply of precision punching steel for high-end automotive power systems is 6,000 tons.

The instrument embedded in the auto plate is able to detect the full plate width.

Steady advancement of innovative, creative, and practical technologies

We have made breakthroughs in a number of "bottleneck" technologies. The full-oxygen smelting gas circulation and injection process flow of HyCROF has been fully deployed. We completed 40 iconic technology certifications including the "high utilization factor production technology for blast furnace" throughout the year.

Comprehensive material solution

We developed 82 comprehensive material solutions to photovoltaic bracket, building turnover, commercial vehicle, electric vehicle and other fields throughout the year.

Intellectual property protection

Baosteel has developed and implemented the *Intellectual Property Project Management* policy, promoted the comparative analysis of intellectual property throughout the entire process of technological innovation, and conducted a series of training on intellectual property management to help employees clarify and unify their understanding of the management requirements, implementation targets, and objectives of an intellectual property project, thereby laying a foundation for us to carry out pilot intellectual property projects.

Intellectual Property Management System

Management of technical secret

- Management of technical secret declaration
- Management of technical secret review
- Management of technical secret determination
- Management of technical secret implementation
- Management of technical secret reward
- Management of technical secret decryption

Patent management

- Patent retrieval
- Patent agency
- Patent application
- Patent tracking
- Patent implementation award
- Patent payment and sponsorship
- Patent waiver investigation
- Management of patent reward

Management of standards

- Standard notice
- Management of standard development and revision
- Third-party product determination
- Procurement technical conditions
- Standard library
- Product certification library
- Inspection document management

Achievement management

- Achievement registration
- Application for high-tech awards
- Application for major awards

Software copyright

- Software copyright registration process

Trademark management

- Trademark registration
- Trademark maintenance
- Trademark change
- Trademark renewal

Innovative products

During the reporting period, we launched 9 new products worldwide, including the heat-resistant and scratch-oriented silicon steel B20HS070, the high-welding high-forming ultra-high strength steel CH1180, the non-oriented silicon steel B30AHV1400M for driving motor of high-efficient new energy vehicles, and the super weather-proof steel BWP800 for photovoltaic support, and received multiple industry awards.

R&D of Innovative Products

The first super weather-proof steel BWP800 for photovoltaic support in the world

This product doubles its strength and weather resistance, and has been successfully applied in photovoltaic power generation projects in Huize of Yunnan Province and Wuhai of Inner Mongolia.

The first non-oriented silicon steel B30AHV1400M for driving motor of high-efficient new energy vehicles in the world

This product is applied to the manufacturing of high-speed new energy vehicle drive motors with 12000 rpm or above, and achieves high material strength, high magnetic induction, and medium-frequency low iron loss at the same time.

The first heat-resistant and scratch-oriented silicon steel B20HS070 and B18HS075 in the world

In response to the demand of high-end coil core users for further reduction of loss and improvement of harmonic resistance, we have manufactured class-1 and super class-1 three-dimensional coil core transformers, with a no-load loss down by more than 10% compared to the highest requirement in the national standards.

Awards for R&D and Innovation in 2022

Ouyeel's furnace melting reduction ironmaking technology was granted the Special Award for Metallurgical Technology Progress (the only winner).

We were granted the First Prize of Metallurgical Technology Progress for the innovation and application technology of high-end silicon steel products for new energy vehicles.

We were given the First Prize of Metallurgical Technology Progress for the R&D and application of key technologies for full utilization of solid waste and collaborative treatment in long-process steel plants.

We were granted the First Prize of Metallurgical Technology Progress for the control technology for unorganized emission of pollutants in coking production process and its application.

We were granted the First Prize of Metallurgical Technology Progress for &D and Application of intelligent operation and maintenance system for equipment in the steel industry.

A cold-rolled dual-phase steel with the highest strength in the world is developed

Baosteel has developed a cold-rolled dual-phase steel with the highest strength in the world is developed, marking another record breaking in Baosteel's product R&D arch and manufacturing of 1.5GPa ultra-high strength X-GPa® and a major breakthrough in the global market.

X-GPa refers to the high-strength steel for automobiles with a tensile strength of over 1,000MPa. In view of the development needs of green, safe, and cost-effective automotive plate products, X-GPa has become a new choice for global lightweight automotive materials. The R&D team overcame a lot of technical difficulties to develop the product, which fills the gap in domestic products for cold-formed automotive plate with such a strength, provides a new solution for key components with high requirements for weldability and safety for automotive OEMs and component manufacturers, provides space for further weight reduction of the vehicle body safety components, and satisfies the demand of the automotive industry for new lightweight and low-carbon materials.

Deep sea steel

In recent years, the focus of global oil and gas exploration and development has shifted from land to ocean, and from shallow sea to deep sea. Deep-sea energy has become a major source of global oil and gas reserves and production, and a key growth point for the world oil industry. As a major form of deep-sea oil and gas storage and transportation, deep-sea pipeline plays an important role in deep-sea oil and gas development.

The deep-sea high-strain L485 pipeline steel plate and the ϕ559×31.8mm UOE submerged arc-welded steel pipe developed by Baosteel has passed the inspection and performance evaluation by the National Center for Petroleum Pipe Quality Inspection, marking that Baosteel made significant technological progress in the key R&D task of "L485 high-strain pipeline steel and UOE steel pipe manufacturing technology" during the "13th Five-Year Plan" period, and further showcasing the independent innovation strength of Baosteel. After mass production, this product is expected to fully safeguard China's energy strategic security in the deep-sea environment.

Intelligent manufacturing

In-depth thinking makes sustainable development, and we plan before we move. Currently, intelligent manufacturing has become one of the main tools for achieving China's strategic goal of transitioning from a manufacturing country to a manufacturing power. Baosteel strives to implement the intelligent manufacturing strategy to improve its product quality and service competitiveness, promote intelligent manufacturing around the in-depth integration of digital intelligence technology and steel manufacturing, comprehensively upgrade data empowerment, and explore the path of digital transformation.

Deployment of intelligent system

Baosteel has always adhered to the transformation from decentralized management to centralized and unified intelligent planning, and that from segmented and post-event processes to consistent and real-time control. We have established a cross-process consistent quality management technology R&D and information system for steel products together with Baosight Software, and carried out intelligently transformation for our cross-process consistent quality management technology by building the "isolated" process parameter data into a unified quality data platform, so as to achieve a process-based and information-based quality management system.

This platform covers the quality information of steelmaking, hot rolling, and cold rolling product processes, sets up a quality map, realizes the sharing and use of information throughout the entire process, analyzes, monitors, diagnoses the entire manufacturing process, and optimizes recommendations for quality improvement.

In addition, aiming to achieve "management + service", Baosteel restructures various intelligent manufacturing systems covering R&D, quality control, procurement and other links, in order to achieve full-process intelligent empowerment.

New technology management system (BeS system)	Quality control (BIQS system)	Quality management tool (PFMEA system)
This system collaborates with external R&D forces to create an efficient R&D ecosystem service that integrates industry and finance, coordinates production plans and R&D resources, takes into account both the R&D characteristics of the headquarters and the bases, develops structures and standards for key technology information, covers upstream and downstream businesses related to technology R&D, realizes the interconnection of multiple systems, and actively explores the development of comprehensive platforms.	We make use of the BIQS system to raise the quality control level, continuously develop new functional requirements in the thick plate and steel pipe areas, vigorously improve the effectiveness of functions and applications that have been launched in various areas, and launch all functions in all areas.	We organize product and process engineers to fully discuss the requirements of the new version of the quality tool PFMEA to determine the information-based system architecture and development ideas of PFMEA, and form an information system development plan. After development, the PFMEA system has been launched for testing, with functions such as full PFMEA import, online editing, perspective by line, and output of predetermined format PFMEA by process.

Intelligent System

Construction of smart base

Adhering to the direction of intelligent upgrading and the core goal of improving production and operation quality and efficiency, Baosteel carries out explorations and practices by means of prioritizing ease before difficulty and using points to cover areas, and summarizes a range of intelligent manufacturing implementation paths with the characteristics of the steel industry.

After years of in-depth deployment, Baosteel's intelligent manufacturing is moving from version 1.0, which is characterized by the "4 As" (all operating positions are taken by robots, all operating rooms are centralized, all operation and maintenance are remotely done, and all services are online), to version 2.0, which is characterized by the "3 cross-integration" (exploring cross-industry integration, cross-space integration of "one headquarters and multiple bases", and human-machine interface integration). Significant achievements have been made in intelligent manufacturing.

Baoshan Iron & Steel's smart base construction objectives

- By 2025, the "4 As" intelligent manufacturing will have come to a successful conclusion, and the four smart manufacturing bases will be completed
- Build a group of highly collaborative intelligent plants with rapid response and lean production
- Build 200 or more intelligent production lines, and achieve full-process coverage of intelligent plant operation
- Build a production decision-making platform for intelligent ironmaking plant, an intelligent steelmaking center, an intelligent hot-rolling decision-making center, a operation and decision-making system for intelligent steel pipe and strip business unit, and other intelligent control platforms for plants

In 2022, centering on the in-depth integration of digital intelligence technology and steel manufacturing, Baosteel further promoted the work of "4 As", "3 cross-integration", and the application of big data and artificial intelligence, and speeded up the construction of smart bases and intelligent plants, and continuously improved the level of on-site automation and unmanned operation. Currently, Baoshan Base's 2CC continuous casting digital plant, 2050 "1+N" intelligent production line for hot rolling, 1730 SmarTex intelligent workshop for cold rolling, and Dongshan Base's 2250 and 1780 intelligent plants for hot rolling have been fully completed and put into operation.

Achievements of intelligent manufacturing

During the reporting period

Baosteel launched	completed and put into operation	added	and used
63 intelligent manufacturing projects	**44** smart manufacturing projects	more than **260** industrial robots	**10** process automation AI robots for the first time

After deploying and promoting the construction of smart base, the Baoshan Base's 10 production lines, including the hot-rolled steel 1580, the silicon steel Q512, and the cold-rolled steel D218, have achieved the extreme efficiency of "one-person control" and "one position for one line", which is leading in the industry.

Intelligent manufacturing plant in the Zhanjiang Base

Zhanjiang Iron and Steel's ultra-high-strength steel intelligent manufacturing demonstration plant was rated the "National Intelligent Manufacturing Demonstration Plant for 2022". The cold-rolled ultra-high-strength steel plant of Zhanjiang Iron and Steel regarded the construction of a new generation of intelligent production lines for high-strength steel as its primary goal in the engineering construction stage, aiming to create a demonstration project for process industrial intelligent plants. The project has built an industry-leading big data center with the first 5G independent exclusive network in China, new industrial Internet infrastructure, and production lines equipped with industrial robots, realized the fully automatic control of on-site operations that are featured in reduced personnel, automatic acid pickling, one-button steel rolling, and one-button annealing of strip steel, and completed the construction of key applications such as 5G+smart security, 5G+remote operation and O&M of key equipment, and industry-leading control center.

After the completion of the construction of the intelligent plant, the efficiency of production line has increased to a leading level in China, achieving a 70.13% decrease in quality loss rate, a 22% increase in production efficiency, and an advanced process control model utilization rate of over 97%. The production line reached its required production and efficiency 4 months ahead of schedule, creating a record in China other production lines.

Quality loss rate decreased
70.13%

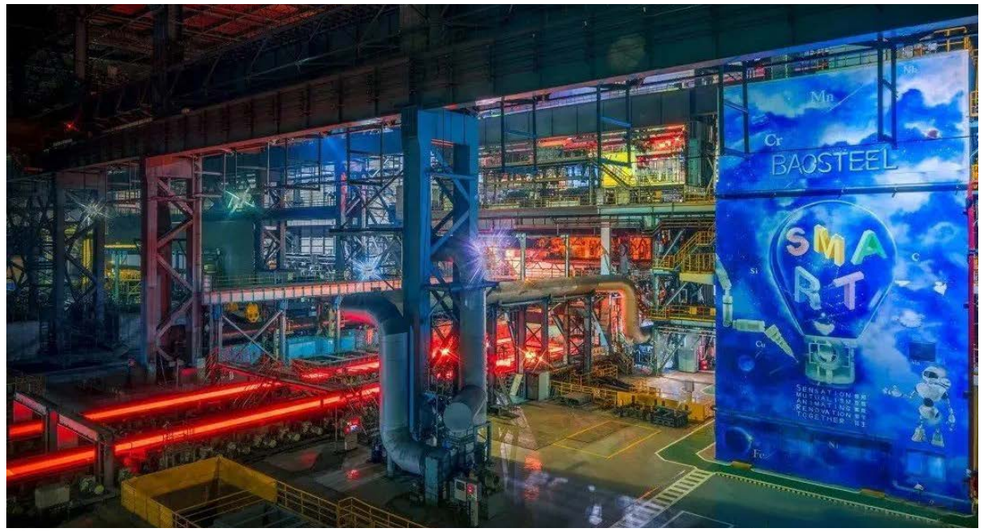
production efficiency increased
22%

An advanced process control model utilization rate of over
97%

Baosteel is awarded the title of "Digital Navigator Enterprise"

Baosteel's "Intelligent Full-Process Digital Steel Plant Based on Industrial Internet Platform" project was included in the pilot and demonstration list released by the Ministry of Industry and Information Technology for the integrated development of new-generation information technology and manufacturing industry in 2022. Baosteel was awarded the title of "Digital Navigator Enterprise".

The Company has built a range of intelligent central systems and production lines, including a cold rolling "dark plant", a large ironmaking control center, a hot rolling intelligent workshop, a silicon steel intelligent plant, a smart molten iron system, an unmanned intelligent warehouse for finished products, and an intelligent control center; applied a lot of intelligent achievements such as unmanned driving, the first SmartTPC (smart torpedo car) in the world, SmartHIM (smart molten iron management), SmartRail (smart railway); comprehensively promoted the promotion, transplantation, and innovative application of Baoluo Robots; achieved significant results in improving labor efficiency and energy conservation and consumption reduction by deeply combining the robot technology with manufacturing and service scenarios. As a result, we have realized the transformation from manufacturing to intelligent manufacturing.



Cultivation of digital talent

Baosteel keeps increasing the proportion of data workers in total technical and business personnel, and cultivate digital talent by providing data engineer training. Referring to the DCMM and DAMA data management knowledge systems, we have prepared the core policies and standards for Baosteel's data governance system, strengthened the management of data architecture, data standards, data quality, data security, data applications and other aspects, and conducted digital talent evaluation, incentive, labor competition and other activities to attract all units to actively participate in the construction of big data applications.

In order to further facilitate our digital transformation and accelerate the cultivation of data talent, Baosteel has also planned the capability training system and the certification examination (BCDE) system for digital intelligence engineers, thereby exploring the path of independent cultivation of data talent for the process manufacturing industry. In 2022, we constituted the preliminary knowledge and capability field of the BCDA exam, which covers the theoretical foundation of mathematical intelligence, mathematical thinking and application, application of mathematical intelligence platforms, and practical application of mathematical intelligence basic tools, and designed 12 professional subjects for training and examination. Nearly 1,000 employees have completed the training.

Customer service

Baosteel insists in satisfying user demands, keeps improving and providing high-quality services, carries out responsible marketing, and walks hand in hand with global customers towards the future. We are committed to providing our customers with the best product usage experience by improving the customer service system, listening to their demands, optimizing customer complaint management, and conducting customer satisfaction surveys.

Customer service system

Baosteel has established an organizational structure of technical service that integrates management, execution, and support. During the reporting period, we optimized the customer relationship management (CRM) model and added processing and sales promotion and distribution customer management modules. We have restructured the market intelligence and customer information sharing platform by implementing integrated management of customer service business, and adopting "dual-center" design, and having business center and data center jointly support the front-end application interface, in order to speed up system iteration and meet the digitalization and information sharing requirements of customer, service, and product management after the transformation of the marketing system. As a result, we have improved the overall efficiency of Baosteel's customer service system, improved the external service efficiency and experience, and raised the internal manufacturing R&D capabilities.

Customer demand management

We listen to users' voices and respond to their demands by means of visit, survey, etc. We also strengthen the collaboration between functional departments and manufacturing bases; optimize the promotion mechanism of user-side issues; establish user service functional modules; verify the effectiveness of user-side improvements by quickly organizing production improvements; and timely address key quality issues from users to improve customer satisfaction.

Handling of customer complaint

Adhering to the primary principle of safeguarding customer's production, Baosteel relies on the iBaosteel Integrated Marketing Center (IMC) to implement whole-process closed-loop management of customer demand and complaint in terms of collection, identification, transformation and disposal, thereby quickly responding to customer demands and improving our manufacturing and R&D capabilities.

Closed-loop Handling of Customer Complaint

On the other hand, we provide support for the upgrade of the CRM system, including synchronous design of workflow, management interface and evaluation indicators, and incorporate all quality objections from channel companies and complaint investigations into the system for management, thereby improving the efficiency of solving users' problems in an all-round and effective way.

Customer satisfaction evaluation

Baosteel adopts a comprehensive evaluation indicator system that combines subjective and objective indicators for customer satisfaction evaluation, in order to fully embody customer satisfaction from the five main dimensions, namely quality, cost, development, delivery, and service (QCDDS). This evaluation incorporates customer satisfaction into the internal quality improvement of the Company by continuously tracking the subjective indicators; and keeps raising customer satisfaction with Baosteel's products and services by helping solve customer complaints.

In 2022, Baosteel gained a score of 92.78 points in the user satisfaction evaluation. In the same year, the customer relationship management (CRM) system went through upgrading and reconstruction, such as setting a "timely customer complaint response rate" and redesigning the process, indicator and management scope. As a result, the efficiency of solving user complaints is reflected more comprehensively, and all quality objections and complaints are included in the system for management.

A score of
92.8
in the user satisfaction evaluation

A timely customer complaint response rate of
91%

Responsible marketing

Baosteel keeps deepening its marketing reform and strictly complies with the *Law of the People's Republic of China on Protection of Consumer Rights and Interests*, the *Advertising Law of the People's Republic of China* and other laws and regulations, aiming to eliminate all forms of exaggeration or false advertising in the process of product marketing. We continue to optimize our internal systems, consolidate the management foundation, and abide by various internal policies contract signing, product promotion and brand promotion, only to eliminate unfair competition. During the reporting period, we conducted sustainable procurement training for all procurement personnel. There was no litigation incident related to responsible marketing, nor any violation involving product and service information and labeling.

03 Low carbon
a Leader of Green Steel

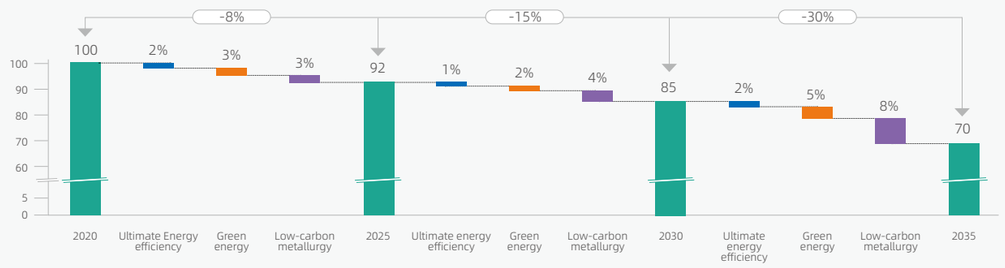
- Green manufacturing
- Green product
- Low-carbon ecosystem

Nowadays, climate change is a material risk to sustainable development. Addressing climate change and seeking low-carbon development have become a consensus and development direction for human society. As a leader and reformer of the steel industry, Baosteel shoulders the significant mission of pursuing green and low-carbon transition in the steel industry and addressing climate change. Therefore, we are committed to setting up a green manufacturing paradigm centered on promoting ultimate energy efficiency, popularizing green energy and low-carbon metallurgy, transcending the current demands with high-quality and forward-looking green product design concepts, acting as a low-carbon leader in the steel industry, making green for the society, and doing far-reaching contributions to the goal of carbon neutrality.

We disclose the identification work for climate change risks and opportunities in Appendix 1 of the Report. In 2022, CDP rated Baoshan Iron & Steel as B in terms of addressing to climate change.

The "Dual Carbon" strategy

Baosteel adheres to the "Dual Carbon" goal set by China Baowu: strive to achieve the goal of Carbon Reaching Peak in 2023 and Carbon Neutrality in 2050. In view of Baosteel's business layout and carbon reduction potential in carbon reduction actions, we have set up the carbon neutrality and medium- and long-term carbon reduction targets, including three five-year carbon reduction targets, namely, carbon emissions down by 8% in 2025, 15% in 2030, and 30% in 2035 compared with 2020 respectively.[3]



Baosteel's Medium- and Long-term Carbon Reduction Plan

Greenhouse gas emission

According to ISO 14064:2018, Company hires third parties to verify the direct and indirect greenhouse gases within its operational control scope every year and issue third-party verification statement (see Appendix 7). At the same time, we track and control the emission intensity of category-1 and category-2 greenhouse gases for the steel manufacturing base on a monthly basis.

The scope for greenhouse gases controlled by Company's operation: The Company's steel manufacturing and processing distribution segments, including the four steel manufacturing bases (the Baoshan Base, the Qingshan Base, the Dongshan Base, and the Meishan Base), independent rolling mills (with raw materials mainly purchased from the market), steel shearing processing distribution centers, and trade distribution service providers. Other segments, such as Baosight Software, Baowu Carbon, and the Finance Company are excluded.

Greenhouse gases: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3 (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, nitrogen trifluoride)

Baosteel's greenhouse gas emissions: Unit: 10,000 tons of carbon dioxide equivalent

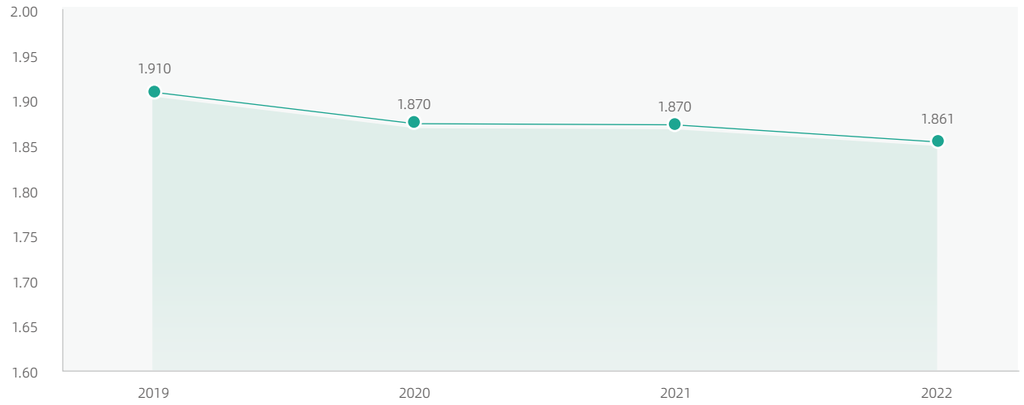
Indicator	2020	2021	2022
Total greenhouse gas emissions (category 1 + category 2)	**8,993.7**	**9,080.5**	**9,658.9**
Direct greenhouse gas emissions (category 1)	8,591.7	8,698.0	9,320.7
Indirect greenhouse gas emissions (category 2)	402.0	382.4	338.2

Greenhouse gas emissions of Baosteel's four bases: Unit: 10,000 tons of carbon dioxide equivalent, ton of carbon dioxide equivalent/ton of crude steel

Indicator	2019	2020	2021	2022
Total greenhouse gas emissions (category 1 + category 2)	**9,262.1**	**8,860.6**	**8,954.2**	**9,482.0**
Direct greenhouse gas emissions (category 1)	8,862.9	8,533.1	8,645.6	9,195.6
Indirect greenhouse gas emissions (category 2)	399.2	327.5	308.6	286.5
Greenhouse gas emission intensity (category 1 + category 2)	**1.910**	**1.870**	**1.870**	**1.861**

[3] We assess the carbon reduction potential of ultimate energy efficiency, green energy, and low carbon metallurgy, and set three five-year carbon reduction targets. There will be uncertainties in their contribution to carbon reduction due to constraints on the construction of external green power corridors and the progress of low carbon metallurgy R&D.

Changes in greenhouse gas emission intensity



As a supplier of steel products, Baosteel is widely adopted by downstream customers. By referring to our global peers, we calculate the Scope 3 GHG Emission from "cradle to gate". As of the end of the reporting period, Baosteel's transportation, product use and services, and other indirect greenhouse gas emissions generated by investment companies in the past three years (i.e. Scope 3 GHG Emission according to the GHG Protocol) are as follows:

Unit: 10,000 tons of carbon dioxide equivalent

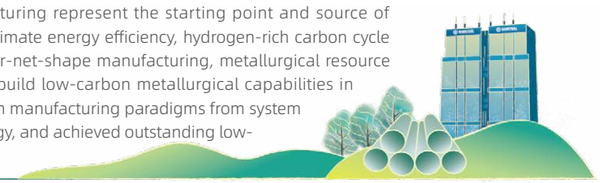
Category	Greenhouse gas emission	2020	2021	2022
Category 3 - carbon emissions from transportation		**512.7**	**574.7**	**501.0**
3.1	Transportation of purchased goods and services	413.0	451.8	379.3
3.2	Transportation and distribution of fuel	12.3	12.7	17.7
3.3	Product transportation[4]	83.9	106.5	99.5
3.4	Employee's commuting	2.7	2.7	4.1
3.5	Business trip	0.7	0.9	0.3
Category 4 - indirect emissions from products and services used by the organization		**2,850.8**	**3,021.1**	**2,908.2**
4.1	Emissions from procurement of goods and services (manufacturing-related)	2,809.5	2,979.2	2,881.1
4.2	Capital goods	23.7	22.3	9.9
4.3	Waste disposal	17.6	19.5	17.1
Category 5 - Indirect emissions from the use of products by the organization		**72.3**	**109.9**	
5.4	Companies invested[5]	72.3	109.9	
Total greenhouse gas emissions for categories 3, 4, and 5 (Scope 3)		**3,435.8**	**3,705.7**	**3,409.2**

[4] In 2023, the transportation distance is accurately checked through the map, and the transportation modes (water, rail, steam, and sea) are also subdivided, and the product transportation emissions are more accurate, so the data for 2020 and 2021 are revised simultaneously, and third parties are verified and validated.

[5] Emissions of invested companies = equity ratio x turnover x emission intensity of investment by industry. The turnover of some invested companies in 2022 has not been disclosed in the reporting period and is disclosed in the 2023 report.

Green manufacturing

Green and low-carbon production and manufacturing represent the starting point and source of green steel. The technical route mainly involves ultimate energy efficiency, hydrogen-rich carbon cycle blast furnace, hydrogen-based shaft furnace, near-net-shape manufacturing, metallurgical resource recycling and carbon recovery and utilization to build low-carbon metallurgical capabilities in multiple dimensions. We have formed a set of green manufacturing paradigms from system to process as well as from organization to technology, and achieved outstanding low-carbon results.



Ultimate energy efficiency

In order to ensure the effectiveness of the energy management system, Baosteel's main plants have all passed the ISO 50001 energy management system certification, with an overall certification ratio of 100%. We supervise the efficient operation of the energy management system via a regular system audit covering all certified plants, as well as benchmarking and error finding. During the reporting period, Baosteel conducted a series of audits for the energy management system, including third-party audit, routine internal audit, and special audit, and issued suggestions for the found problems in order for continuous optimization and improvement.

We keep tracking and summarizing cutting-edge energy-saving and low-carbon technologies in the steel industry, establish and update Baosteel's energy-saving and low-carbon BACT, and classify and manage the technologies in the BACT library according to their technical readiness level (TRL). We rapidly apply and promote the technologies with a high TRL, optimize and improve the technologies with a medium TRL when a demonstration project is successful, and conduct joint R&D with universities and engineering companies for the technologies with a low TRL in view our own demands, thereby highlighting our corporate responsibility as a leader in the industry.

Baosteel's main plants have all passed the ISO 50001 energy management system certification, with an overall certification ratio of

100%

Ultimate energy efficiency - the waste heat and residual energy resource utilization project in the Dongshan Base

Baosteel has always focused on promoting carbon reduction through the utilization of waste heat and residual energy recycling. During the reporting period, the recycled residual energy per ton of steel at the Dongshan Base was 98.2kgce/t, which was the best in history, with six indicators reaching the annual best.

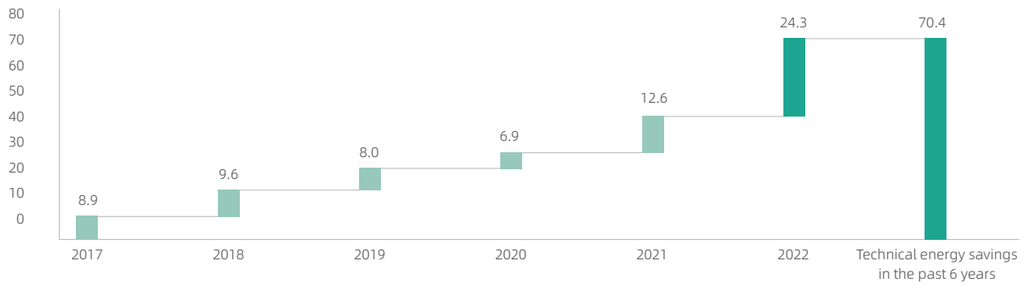
During the reporting period, the Dongshan Base promoted the following residual energy resource utilization projects:

- Add waste heat boilers for the large flues of three sintering machines, with an estimated annual steam production of 215,000 tons after completion;
- Add insulation covers to the continuous casting roller way in the steelmaking plant, the continuous casting roller way in the hot rolling plant, and the slab roller way in the hot rolling heating furnace, in order to reduce slab temperature drop and improve regional thermal radiation, with a total energy savings of 1,706 tons of standard coal;
- Add new furnaces and kilns for the thick plate plant to utilize waste heat from flue gas for refrigeration and power saving. This project will generate hot water from the waste heat of the heating furnace flue gas based on heat exchange, and use dual effect lithium bromide refrigeration technology to replace an electric refrigerator, with a total energy savings of 1,004 tons of standard coal;
- Add cover to the torpedo car. This project will reduce the heat loss of molten iron during transportation and the temperature drop when the empty torpedo car is covered, thereby achieving an increase of 5℃ in the temperature of molten iron. The first batch of 10 units will be renovated as planned, of which 2 units have been completed.

Energy efficiency improvement

Baosteel strives to apply BACT in all its processes and implements BACT for energy saving and low carbon emission in the four bases. According to the 2022-2027 plan, the ultimate energy efficiency project intends to save energy 1.069 million tons of standard coal via BACT, of which the energy-saving target for 2022 is 159,000 tons of standard coal. The project put into operation in 2022 saved 243,000 tons of standard coal via BACT, significantly greater than the annual target. The energy-saving and low-carbon technology library has been upgraded to 2.0, with a total of 71 technologies updated and added. Over the past 6 years, we have persisted in promoting the "Special Action for Energy Efficiency Improvement", achieving technical energy savings of 704,000 tons of standard coal (1 kg of standard coal = 29.308 megajoules = 8.142 kilowatt hours).

Baoshan Iron & Steel's technical energy savings (10,000 tons of standard coal)



[3] "Three flows and one status" stands for energy flow, manufacturing flow, value flow, and equipment status.

With sound management systems and technical support, Baosteel keeps taking a range of energy management measures to promote the application of advanced technologies, improving quality and efficiency with management indicators, and improving energy structure and efficiency, so as to reduce greenhouse gas emissions and achieve efficient energy management and low-carbon operation.

Optimize power generation structure

Continuously optimize power generation structure, transform the power supply and distribution system, and adjust the safe operating load of power generation in the plant, thereby effectively reducing the procurement volume of energy

Reduce energy consumption of process

Compare the energy consumption of internal and external processes in the four bases, reduce the energy consumption of main processes, and implement BACT for energy saving and low-carbon emission

Control fuel usage

Carry out cross-provincial green electricity replacement trading and green power trading, increase the proportion of clean power in the company, and reduce the use of high-carbon fuels

Planning, operation and regulation

Carefully plan and arrange the operation, maintenance, shutdown and recovery of the power generation units in the plants to ensure that the Company will accomplish the control of the amount and intensity of energy and carbon emissions

Smart energy management

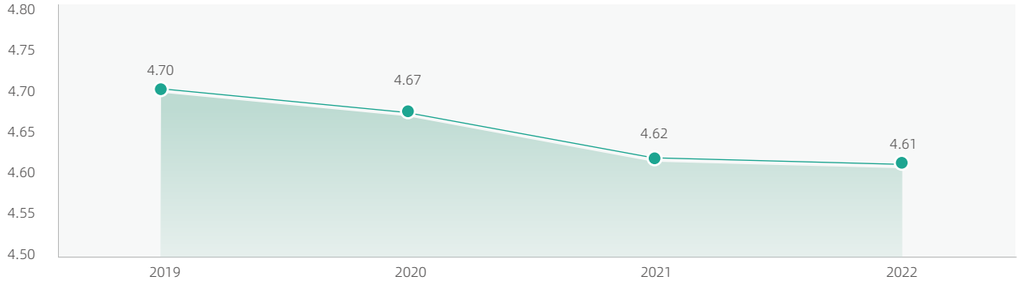
Initiate the construction of a smart energy management information system, construct energy domains, implement refined energy management, and steadily carry out basic energy and environmental protection management work.

Energy Management Measures

Energy efficiency

Baosteel has improved energy efficiency and achieved significant energy management results after advancing the "ultimate energy efficiency" project. The energy consumption intensity of Baosteel is as follows:

Changes in comprehensive energy consumption per ton of steel



Comprehensive energy consumption per ton of steel (megawatt hours/ton of crude steel)

Clean energy

In order to increase the proportion of clean energy, the Company continues to increase the development efforts for rooftop photovoltaic projects in the plants, and engages in the electricity trading market to increase the quantity of green power procurement. During the reporting period, the Company approved the addition of 112MWp of photovoltaic installation and 62.3MWp of photovoltaic device put into operation. The Company has completed a total green power trading volume of 576 million kWh. The Baoshan Base has completed the trading of 10,000 green electricity certificates for the first time, which is equivalent to trading 10 million kilowatt hours of green power.

In the future, Baosteel will keep increasing the scale and proportion of clean energy use. The Company has formulated preliminary plans for photovoltaic and wind power generation. For example, in view of the existing layout, the Dongshan Base is expected to build 40MWp of photovoltaic units in 2023, 10MWp of photovoltaic units on some concrete plant roofs and idle plots in 2024, which is a total of 145MWp of photovoltaic power generation units built by 2025. The Dongshan Base will consider utilizing hydrogen-based shaft furnaces, zero-carbon engineering plants, and idle storage yards, which represents an additional 15MWp of photovoltaic power generation units. Due to site restrictions and safety distances, it is temporarily planned to build 12MWp of wind power generation units. During the 14th Five-Year Plan period, it is planned to build wind power generation units of 12.5MWp, with an average annual power generation of 24.856 million kWh.

During the reporting period

the Company approved the addition of

112MWp

of photovoltaic installation

62.3MWp

of photovoltaic device put into operation

The Company has completed a total green power trading volume of

576million kWh

The scale of clean energy, such as photovoltaic power generation, in the Dongshan Base continues to expand

On the basis of the successful grid connection of the first phase of photovoltaic power generation project in the Dongshan Base in the previous year, during the reporting period, photovoltaic project (Phase II) was put into operation in the Dongshan Base, with an additional grid-connected power generation capacity of 47MWp, and an annual power generation capacity of 46.83 million kWh. The total installed capacity of photovoltaic power generation in the entire plant is 95MWp, and the annual power generation capacity is 100 million kWh, equivalent to saving 32,000 tons of standard coal and reducing 87,000 tons of carbon dioxide per year.

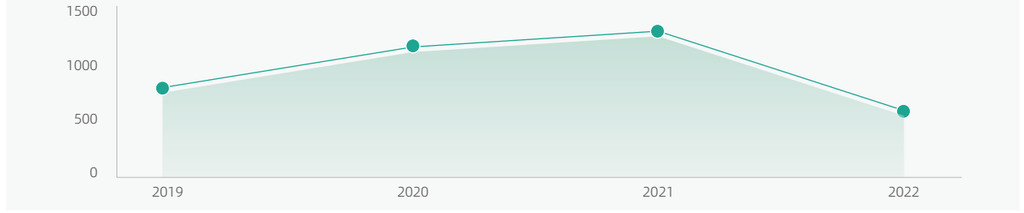
Annual generating capacity		Equivalent to an annual carbon dioxide reduction	
47.55 million kWh → 100 million kWh		46,900 tons → 87,000 tons	
2021	2022	2021	2022

As of the end of the reporting period, Baosteel has witnessed its installed capacity, power generation, and clean energy electricity procurement (including steel manufacturing, processing and distribution segments, and Baowu Aluminum) as follows:

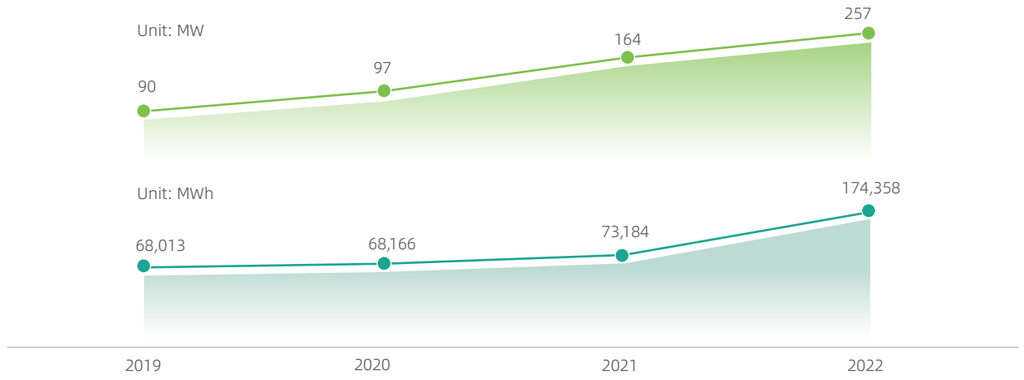
Indicator	Unit	2019	2020	2021	2022
Installed capacity of photovoltaic power generation on the plant roofs	MW	90	97	164[6]	257
Photovoltaic power generation on the plant roofs	MWh	68,013	68,166	73,184	174,358
Clean power procurement	GWh	851	1,150	1,370	576[7]

Installed capacity is based on overall commissioning, so the installed capacity data for 2021 and 2022 are adjusted. The Company's 2023 target of 100MWp of new PV installed capacity is expected to be completed one year ahead of schedule with 500MWp of PV installed capacity planned for 2022~2027

Changes in clean power procurement



Clean power procurement (GWh)



Installed capacity of photovoltaic power generation on the plant roofs

Photovoltaic power generation on the plant roofs

Low-carbon metallurgy

Baosteel centers its green production practice on the key technical route of carbon-neutral metallurgy. We are committed to making breakthroughs in the key low-carbon metallurgical process and leading the green and low-carbon transformation of the steel industry. During the reporting period, following the aforementioned key technical route of carbon-neutral metallurgy, Baosteel carried out or optimized a range of low-carbon and zero-carbon production demonstration projects.

[6] Installed capacity is based on overall commissioning, so the installed capacity data for 2021 and 2022 are adjusted. The Company's 2023 target of 100MW of new PV installed capacity is expected to be completed one year ahead of schedule with 500MW of PV installed capacity planned for 2022~2027

[7] High and volatile fossil energy prices due to the Russia-Ukraine conflict in 2022 caused a short period of electricity stress, limiting the amount of green power traded in China.

Hydrogen-rich carbon cycle oxygen furnace (HyCROF) project

The project has been jointly promoted by Baosteel, Bayi Iron and Steel, and Baowu Design Institute (Sinosteel) under the leadership of Baowu Group's Central Institute. An industrial test platform for HyCROF has been built. The project was advanced to phase III during the reporting period and was launched on July 6, 2022.

After nearly half a year of industrial testing of HyCROF, the process flow of full-oxygen smelting gas circulation and injection has been established, thereby achieving the technical goal of stable and smooth operation and significant carbon reduction, and proving that the HyCROF process has enormous potential in terms of carbon reduction. The test results show that compared to the benchmark period, under the same coal injection ratio, the solid fuel consumption decreases by about 30%, and the carbon emissions of molten iron is down by more than 20%.

HyCROF

The hydrogen-based shaft furnace project - advancing the construction of zero-carbon demonstration production line

Baosteel has invested approximately RMB 6.3 billion to build a million-ton hydrogen-based shaft furnace + electric furnace in the Dongshan Base as a demonstration and landmark project for low-carbon metallurgy in the steel industry, which is expected to be completed in 2025. After putting into production, compared to the conventional full-process blast furnace ironmaking process, this project will reduce carbon dioxide emissions by 50-80% under the same production of molten iron. The remaining unavoidable greenhouse gas emissions can be neutralized with "carbon sink".

During the reporting period, Baosteel set up the "Key Technology and Experimental Research on Ironmaking Using Hydrogen-Based Shaft Furnace Direct Reduction" project in March. The project will provide technical support for the optimization of hydrogen-based shaft furnace production in Zhanjiang by carrying out the construction of a hydrogen metallurgy pilot platform, deeply purifying hydrogen-rich gases, studying on carbon laws and carbon control technologies and on direct reduction pellet preparation technology, optimizing shaft furnace gas structure, and developing a hydrogen-based shaft furnace process calculation model.

The first hoist of shaft furnace shell

Recycling of metallurgical resources - organic biomass energy

Applying organic biomass resources as a carbon neutral substance and as a good alternative fuel for coal in steelmaking processes will greatly reduce the use of fossil fuels and carbon dioxide emissions.

During the reporting period, Baosteel completed a validation test on biomass hydrothermal carbonization. When using waste wood chips as the raw materials for hydrothermal carbonization, the average yield of hydrothermal carbon was 53.67%, the calorific value of hydrothermal carbon was 24.29-25.67MJ/kg, which was similar to lignite coal, and the alkali metal removal rate was over 60%, which is equivalent to that of low alkalinity coal. Hydrothermal carbon is suitable for blast furnace injection as it is good in grindability, flowability, jet flow, and combustibility.

In view of the above experimental results, Baosteel has identified the technical route of using biomass for ironmaking process after hydrothermal carbonization to remove alkali metals and increase energy density, and prepared a detailed technical scheme for constructing a pilot production line for biomass charcoal with an annual processing capacity of up to 10,000 tons of biomass raw materials. Baosteel will carry out the construction and production testing of a pilot biomass charcoal platform in the future.

Green product

The purpose of green steel is to manufacture green products for customers and downstream industries, as well as meet, explore, and lead green demands. Baosteel has launched a range of widely recognized new green and low-carbon products after conducting low-carbon smart management and carbon footprint assessment to improve the green attributes of its products.

Low-carbon product

According to Baosteel's prediction of future climate change opportunities, the production mode of the steel industry and its downstream markets are undergoing profound changes, for which manufacturing competitive green and low-carbon products for the downstream markets will be a significant historical opportunity in the future. As such, we have formulated the 2035 low-carbon and zero-carbon steel product plan and continuously made new achievements.

2022	2025	2030	2035
In 2022, we launched BeyondECO™ low-carbon steel, and supplied the market with green low-carbon products that reduced carbon emissions by 30% compared to 2020.	In 2025, the zero-carbon demonstration line will be completed in the Dongshan Base, with annual capacity of 1.8 million tons of carbon plates, to explore the zero-carbon steel production technology	By 2030, low-carbon and high-grade steel will be produced by the full-scrap steel electric furnaces with a capacity of 2.3 million tons per year	By 2035, the hydrogen-based shaft furnace production line with a capacity of 1.8 million tons per year will fully utilize green power and green hydrogen.

The 2035 Low-carbon and Zero-carbon Steel Product Plan

BeyondECO™ is a green and low-carbon brand launched by Baosteel in 2022, including low-carbon and zero-carbon steel products. For example, "BeyondECO-30%" refers to the green low-carbon steel with a carbon footprint reduced by 30% compared to the same product of Baosteel in 2020.

To adapt to the transition requirements of a low-carbon society, Baosteel green and low-carbon products will focus on the non-oriented silicon steel for new energy vehicle drive motors and industrial motors, the steel for clean energy mining and transmission, and the ultra-low carbon automotive plate materials. Baosteel is able to provide a variety of silicon steel products, ultra-low carbon automotive plate materials, and full range of thick plate products and material upgrade solutions for onshore and offshore wind power units, such as the high-strength wind power thick plates for wind towers and the BeCOREs® for wind turbines, etc.

During the reporting period, Baosteel made significant progress in the R&D of new products. The unique new trial product ratio was 32.15%. We have launched 9 new products worldwide, including the heat-resistant and scratch-oriented silicon steel B20HS070, the high-welding high-forming ultra-high strength steel CH1180, the non-oriented silicon steel B30AHV1400M for driving motor of high-efficient new energy vehicles, and the super weather-proof steel BWP800 for photovoltaic support.

The SMARTeX solution for new energy vehicles

Baosteel is committed to making SMARTeX a top-notch global brand of automotive steel, and continues to develop ultra-low carbon automotive plate materials and products, for which we have been highly recognized by the downstream users.

During the reporting period, Baosteel explored the low-carbon technological route of automotive steel and completed the trial production of cold-rolled and hot-galvanized low-carbon products for autos. As verified by third parties, the carbon footprint of the product is down by more than 60% compared to a conventional process. Our fuel tank reinforcement bracket made of low-carbon products, lower part of B-pillar reinforcement inner plate, seat headrest connection plate, and seat installation bracket passed the stamping verification and application demonstration on the user end as all their indicators were consistent with the user's criteria and requirements.

BeyondECO

The carbon emission of product is down by more than

60%

compared to a conventional process

Smart carbon data platform

A handy tool makes a handy workman. Sophisticated digital and intelligent management tools play a fundamental role in carbon management. In order to support the carbon management system, Baosteel launched the construction of its smart carbon data platform in the previous year. During the reporting period, the key functional modules were completed and went live. We are now in the system trial operation stage. The smart carbon data platform boasts three core modules: carbon accounting, carbon asset, and carbon footprint, as well as five innovative points: comprehensive standards, wide range, fine granularity, accurate data, and new architecture.

The carbon accounting module

The accounting scope covers Baosteel's Baoshan Base, Qingshan Base, Dongshan Base, and Meishan Base, Huangshi Coated Plate, as well as all emission control subsidiaries. When doing carbon accounting, the smart carbon data platform will generate carbon accounting data reports via real-time collection of production material data and automatic calculation of models to provide key quantitative tools for the Company to track and evaluate its carbon emission performance, develop carbon reduction strategies, reduce carbon costs, and timely disclose carbon information, as well as support the Company to accomplish the carbon peaking and carbon neutrality goals.

The carbon asset module

The smart carbon data platform obtains data from carbon emission trading systems, quota registration systems, CCER system, and carbon emission reporting systems, and supports the Company in summarizing policy information and analyzing industry data in view of the Company's internal carbon asset management information. Based on the carbon price model, the smart carbon data platform achieves the prediction and recommendation on carbon trading costs, coordinates and optimizes the Company's carbon assets, and provides systematic information technology support for the Company to reduce contract performance costs and enter the national carbon trading market.

The product carbon footprint module

According to the ISO14067 standard and the global LCA methodology, the smart carbon data platform constitutes from "cradle to gate" an LCA carbon footprint calculation model for major categories of products and materials covering the Company's four bases. As a result, the carbon emission of each steel coil is traceable, manageable, reportable, and verifiable, and the downstream users are provided with the carbon footprint of each product.

Three modules of the smart carbon data platform

Comprehensive standards	The smart carbon data platform models according to ISO14064, ISO14067 and other relevant standards as well as the LCA methodology, and accounts for the relevant emissions for the first time
Wide range	The smart carbon data platform is a comprehensive "Dual Carbon" application data platform for enterprises and a carbon emission and carbon footprint calculation platform for all of the Company's products as it involves organizational carbon and product carbon
Fine granularity	Based on the big data center's full-link and full-element digital steel coil model, the smart carbon data platform expands the carbon-related data of detailed steel coils, constructs an online carbon footprint tracking model for steel coils, calculates the carbon footprint of over 100,000 pieces of materials in real time, and achieves carbon footprint calculation for each detailed steel coil for the first time
Accurate data	The smart carbon data platform collects massive data in real time, forms true and reliable data assets with data governance, and supports systems to automatically generate carbon emissions and carbon footprints
New architecture	Based on the M/S architecture of the four bases and a big data center with cloud-edge collaboration, the smart carbon data platform summarizes data across companies, bases and disciplines. It is an innovative tool on Baowu's internet platform for the "Dual Carbon" goals.

Five Innovative Points of the Smart Carbon Data Platform

Launching Ceremony of the Smart Carbon Data Platform of Baosteel

Carbon footprint evaluation

In order to further improve its green manufacturing capabilities and make greater contributions to addressing climate change and low-carbon green transformation, Baosteel conducted product LCA carbon footprint identification in the upstream, midstream and downstream during the reporting period to evaluate the carbon footprint of steel products with performance data, and put forward the carbon reduction effects of different steel production processes and steel products on the entire society from a full lifecycle perspective.

Upstream - carbon footprint accounting for suppliers

The Company has established a low-carbon procurement action team based on the construction of a green and low-carbon supply chain to carry out low-carbon business exchanges and cooperation with some important suppliers. They have completed the actual carbon footprint accounting of 181 industrial product materials, provided the one-stop online "carbon footprint quantification and evaluation" service (Obei Zero Carbon) for enterprise users, and assisted suppliers in improving their carbon emission data infrastructure. We are now able to assign carbon labels to all products with calculated carbon footprints.

Midstream - evaluate the carbon footprint changes caused by advanced technologies such as hydrogen furnace discharge

In accordance with LCA methodology and relevant standards such as ISO 14067, GB/T24040, and GB/T24044, the Company has evaluated the impact of advanced low-carbon technologies such as hydrogen-based shaft furnace, hydrogen-rich carbon cycle, and adding scrap steel to blast furnace on the carbon footprint of products, evaluated and analyzed the carbon footprint of key products such as hot-galvanized steel, ordinary cold steel, and silicon steel with various low-carbon technologies under different raw materials and energy structures, and grasped the impact of advanced low-carbon technologies on reducing product carbon footprint.

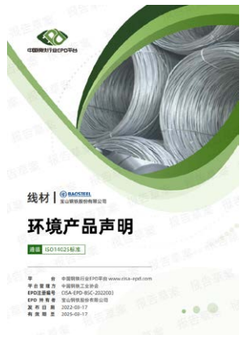
We have put forward directions and measures to reduce carbon footprint in view of the assessment and analysis of the carbon footprint of Zhanjiang's zero-carbon demonstration line products under different raw materials and energy structures from hydrogen-based shaft furnaces, as well as the consumption of energy, raw materials, and auxiliary materials in various production processes of the zero-carbon demonstration line.

Downstream - integration of silicon steel pilot with the automotive and household appliance industries, etc.

Based on the methodology for calculating the carbon footprint of steel products and relevant accounting standards, we have conducted LCA evaluations for the carbon footprint of silicon steel of Baoshan Iron & Steel, and compared the accounting results with some downstream silicon steel users for carbon reduction and substitution of high- and low-grade oriented silicon steel products, with a carbon reduction up to 15%.

Baosteel's LCA Carbon Footprint Evaluation

During the reporting period, Baosteel completed the quantitative evaluation of the carbon footprint of 14 major categories of products of Baoshan Base, had them certified by Intertek, a third-party agency. The EPD report for hot-rolled products and wire rod products was released on the day of the launch of the EPD platform for the Chinese steel industry.



Intertek Certificate and EPD Environmental Product Declaration

Low-carbon ecosystem

Baosteel puts into practice low-carbon and green development in its own operations and strives to radiate its influence to drive industry progress and low-carbon transformation in the upstream and downstream of the value chain, as well as nationwide and even globally. We have carried out a range of industry co-construction activities and strategic cooperation projects to build deep links with other parties and achieve a win-win future with them.

Low-carbon industry co-construction

Low-carbon transition requires us to go hand in hand, representing a comprehensive transformation from knowledge to practice. As a leader in the steel industry, Baosteel has always maintained open and active to communications and exchanges, and strives to share industry insights and the latest green and low-carbon topics with experts and organizations from various countries, thereby promoting the prosperity of a low-carbon industry ecology.

GLCMI & Baosteel BAC

In order to promote the broad and profound economic and social systematic change of "carbon reaching peak and carbon neutrality", form the consensus of all parties in the low-carbon transformation of the global metallurgical industry, and focus on the era theme of "reshaping the key position of the steel industry in the process of human sustainable development", GLCMI & Baosteel BAC was held in Shanghai on November 16-18, 2022. This forum was sponsored by Baowu Group and organized by Baosteel under the guidance of China Iron and Steel Association and World Steel Association. More than 90 well-known experts in the industry and academia were invited to share their views on steel topics such as green and low-carbon technology, green manufacturing, green product, green industry, and intelligent manufacturing.

Baosteel participates in the green public procurement commitment of UNIDO

In 2022, Baosteel participated in the development of the IDDI green public procurement commitment of UNIDO as a member of the technical expert group. This program aims to facilitate government procurement entities to purchase and use low-carbon building materials in major public construction projects, send demand signals, and guide the decarbonized transformation of steel, cement and other industries. A commitment letter for green public procurement has been released, but the specific compliance standards for the commitment letter are still being discussed and developed.

Low-carbon strategic cooperation

During the reporting period, Baosteel advanced the low-carbon strategic cooperation with multiple leading enterprises at home and abroad that covers multiple aspects like carbon reduction technology, engineering development, and green supply chain, aiming to continuously expand the depth and breadth of Baosteel's low-carbon strategy and forge its low-carbon core competitiveness.

Baosteel participates in the CCUS program

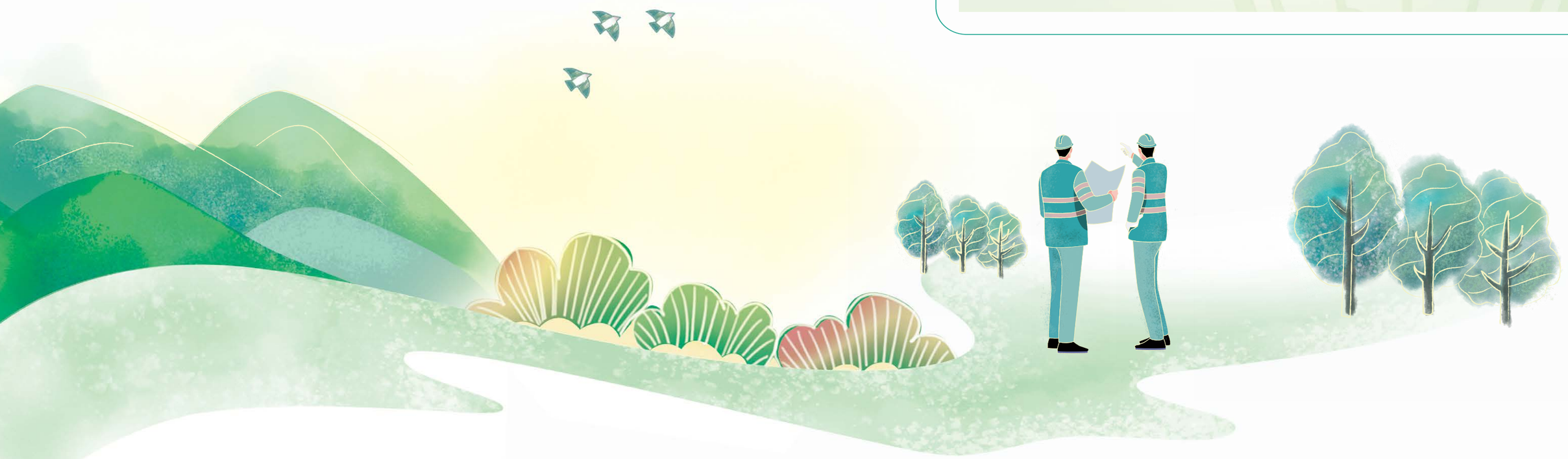
Baosteel actively pursues technology research and cooperation opportunities such as CCUS, seeks technologies for utilizing C, CO and CO2 throughout the lifecycle, and combines CO2 solidification with modern metallurgy. In November 2022, Baosteel, Sinopec, Shell, and BASF entered into a memorandum of understanding (MOU) on cooperation. The four parties to this MOU wishes to fully utilize their resources and technological advantages, jointly launch multi-party cooperation on the CCS/CCUS program in eastern China, create a low-carbon supply chain for petrochemical and steel products, evaluate their engineering design and construction capabilities in terms of CCS/CCUS, and provide opportunities for the existing industries to decarbonize and participate in the CCS/CCUS program.

Baosteel and Shell sign an enterprise framework agreement on green steel

In February 2022, Baosteel and Royal Dutch Shell Group signed an enterprise framework agreement (EFA) on green steel and a master agreement on emissions trading. Both parties will jointly make breakthroughs in the fields of hydrogen energy, carbon capture and storage while maintaining growth in their cooperation in green steel, low-carbon travel, lubricant and other fields.

Baosteel and Beijing Benz enters into the *Memorandum of Understanding on Building a Green Steel Supply Chain*

In November 2022, Baosteel and Beijing Benz signed the *Memorandum of Understanding on Building a Green Steel Supply Chain* (hereinafter referred to as the "Memorandum"), aiming to use greener raw materials in the manufacturing process of complete vehicle, jointly create a green automotive steel supply chain, and make Baosteel become the first steel enterprise that provides clear carbon reduction products to automotive companies in China. The Memorandum provides the specific route of carbon reduction technology, as well as detailed implementation schemes and measures. This strategic cooperation will promote both parties to advance carbon reduction on the entire industry chain and throughout the lifecycle, achieve cross-disciplinary collaborative carbon reduction, join hands in approaching a green and sustainable future, and working together to make substantial contributions to addressing global climate change.



04 Environment

Build an Ecological Civilization

- Environmental management
- Waste gas management
- Waste management
- Water resource management
- Circular economy
- Biodiversity

It is the bottom line for Baosteel's environmental management to reduce the pressure and impact of its own operations on the environment as well as protect ecological environment and biodiversity from damage. We have unswervingly performed long-term management and optimization of multiple indicators such as solid waste, exhaust emission, water resource, and biological population protection, and focused on the combination of pollution prevention and control, scrap steel recycling and low-carbon operation, in order to facilitate both green and low-carbon transformation of energy structure and improvement of ecological environment quality, and achieve synchronous waste reduction, pollution reduction, and carbon reduction.

Environmental management

Baosteel advances environmental protection and ecological civilization construction by adhering to the ideas about ultra-low emission of waste gas, zero wastewater discharge, solid waste disposal at factories, cleaning, greening, beautification, and culture. We develop vigorous environmental management policies and implementation systems, keep improving our environmental management systems and "environmental guidelines", and reduce relevant risks, so as to ensure that Baosteel's environmental protection ideas and ecological civilization construction will be accomplished. During the reporting period, Baosteel invested RMB 8.93 billion in environmental protection, and RMB 7.03 billion in capitalized projects.

Environmental management system

Baosteel's Strategy, Risk and ESG Committee is responsible for its environmental management work. Under their leadership, the environmental management work is carried out at 3 levels, namely, the Energy and Environmental Protection Management Committee, the Energy and Environmental Protection Department, and the Energy and Environmental Protection Department of each base.

Correspondingly, Baosteel clearly links the completion of environmental performance targets to management performance compensation in its management system. When a significant environmental issue or major environmental incident is found in the internal review process, the Company will determine the disposal method in view of the severity of the environmental issue, and the responsible departments and managers may receive punishment like performance veto, economic penalty, or administrative penalty. During the reporting period, there was no major environmental pollution incident within the operating scope of Baosteel.

Strategy, Risk and ESG Committee

- Overall leadership, supervision, and review
- Major energy and environmental protection decisions;
- Evaluation and determination of major energy and environmental risks and measures.

Energy and Environmental Protection Department

- Review, supervision and guidance of the 6-year green and low-carbon plan;
- Strategic communication on sustainable development of steel plants in other cities;
- The energy management system with "three streams and one state";
- Unified planning and hierarchical management of environmental protection;
- Overall management, planning, and coordination.

The Energy and Environmental protection department of each base

- Local construction of energy system, energy production and supply, energy-saving technologies, and local-carbon emission mechanisms;
- Local management of environmental protection system construction, environmental incident, environmental monitoring, environmental cost, etc.

Energy, Environment, and Carbon Management Systems

As of the end of the reporting period, Baosteel's plants have all passed the ISO 14001 environmental management system certification, with an overall certification ratio of 100%. We adhere to the relevant provisions of ISO 14001 in our daily production and operation, and refer to other international standards to optimize management and improve efficiency.

Environmental management policy

Baosteel strictly complies with the *Environmental Protection Law of the People's Republic of China* and other laws and regulations, and scientifically manages environment-related matters in our operations in accordance with the internal policies such as the *Environmental Protection Compliance Management Measures*, alert relevant environmental risks, and vigorously fulfill our environmental management responsibilities. In addition, in accordance with the *Environmental and Environmental Protection Process Management Measures* and the *Environmental Protection Performance Evaluation and Environmental Protection Accountability Management Measures*, we regularly review our environmental management system, issue the *Environmental Management System Review Report*, clarify the accountability for environmental incidents, evaluate the performance of management personnel, and form a closed loop of environmental accountability.

During the reporting period, Baosteel conducted a total of 455 environmental supervisions and inspections, and rectified the found problems. Our green development index has reached a new high, up from 77 in 2020 to 82. All four bases were awarded the title of "China Steel Industry Clean Production and Environment-Friendly Enterprise" by China Iron and Steel Association.

Environmental management planning

The *Outline of BaosteelUrban Steel Plant (2019-2024)* has been updated to the new six-year *Green and Low-Carbon Development Plan for Baosteel (2022-2027)*. In accordance with this plan, the Company insists in promoting the construction of green plants, closely monitor the latest green product demand from customers and the market, and continuously explore the direction of green development on the industry chain. On this basis, the Company has preliminarily formed industry-city integration, built shared values, fully carried forward the sustainable development mode of "urban steel plant" with the characteristics of steel enterprise and its process equipment, and kept promoting the construction of urban circular economy.

During the reporting period, we developed a LCA impact assessment model for the hot-rolled, cold-rolled, and silicon steel products at the four bases, and conducted lifecycle assessment for Baosteel's major products with eight quantitative indicators of environmental impact, namely, carbon footprint, eutrophication, photooxidant formation, energy consumption, human toxicity, ecological toxicity, acidification, and resource consumption. Based on the evaluation results, we have further grasped the environmental indicators of product lifecycle and their distribution patterns at various stages, thereby providing a strong support for improving and optimizing environmental management. Baosteel has actively conducted training on environmental protection to provide intellectual and cultural support for the Company to implement its environmental management strategy. The Company's environmental training coverage rate in the reporting period was 100%

The Company's environmental training coverage rate is

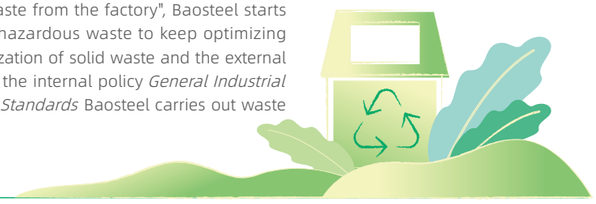
100%

Target and Performance of Environmental Management

Indicator	Unit	2020	2021	2022	2022 target
Nitrogen oxide emission intensity	Kg/ton of crude steel	0.68	0.53	0.41	0.62
Sulfide emission intensity	Kg/ton of crude steel	0.24	0.19	0.16	0.25
Chemical oxygen demand emission intensity	Kg/ton of crude steel	0.02	0.02	0.01	0.02
Comprehensive utilization rate of solid waste	%	99.55	99.80	99.91	99.80
New water consumed per ton of steel	Ton of water/ton of crude steel	2.90	2.62	2.39	2.75

Waste management

With the overall goal of "not disposing solid waste from the factory", Baosteel starts with the source reduction control of solid and hazardous waste to keep optimizing and strengthening the return-for-production utilization of solid waste and the external utilization of solid waste products. According to the internal policy *General Industrial Solid Waste and Hazardous Waste Management Standards* Baosteel carries out waste management in the following aspects:



Full-process optimization of solid waste system

The goal of financial data implementation and refined management is achieved by optimizing the big data management of the solid waste information system and supporting the implementation of "cost benchmarking" work

Creation waste-free city in an collaborative manner

Launch the construction of waste-free park gradually in response to the call of the local government to create waste-free city, and further incubate waste-free park solutions on the basis of standardizing the entire hazardous waste management process. For example, the Meishan Base completed the plan for creating a waste-free park in the reporting period and submitted it to the Nanjing municipal people's government.

Use high-temperature furnaces to eliminate and consume solid and hazardous waste

Use blast furnace and revolving furnace to eliminate and consume solid and hazardous waste such as used dust bags and oily waste paper to reduce environmental risks, provide solid support for the goal of "not disposing solid waste from the factory", and reduce the cost of outsourced disposal.

Strive to make technological breakthroughs and implement key projects

Speed up the construction of key projects such as rotary hearth furnace, and raise the return-for-production utilization rate of solid waste by collaborating with universities to make technological breakthroughs on the return-for-production utilization of solid waste, promoting the economic operation of rotary hearth furnaces, utilizing chromium containing waste in a coordinated way and other measures.

Decrease solid and hazardous waste emissions from the source

Promote waste emission decrease from the source and the return-for-production utilization of waste by optimizing the design of resource utilization indicators for steelmaking and ironmaking processes;

Promote waste emission decrease from the source and the return-for-production utilization of waste by fully utilizing the big data of the solid waste information system, refining assessment standards, and optimizing annual assessment indicators.

Certification of solid waste products

Determine the direction of solid waste resource utilization according to national, industry and group standards, develop standards for the solid waste products without relevant standard support, prepare and release a range of corporate standards, and get approval of the Ministry of Industry and Information Technology of China.

Progress of the comprehensive utilization of iron containing solid waste resources in the Baoshan Base

In 2022, the Baoshan Base kept strengthening the R&D of technologies for comprehensively utilizing iron containing solid waste resources and their return-for-production utilization. Thanks to the rotary hearth furnace process, all the revolving furnace sludge and electric furnace ash were converted into products and put into return-for-production utilization. In 2022, the production of rotary hearth furnace reached 211,000 tons; By adding new rod milling devices and improving capabilities, the amount of slag iron powder used in recycling and return-for-production utilization in 2022 increased by 30,000 tons compared to 2021. All the iron oxide red for sale of 14,000 tons were put into return-for-production utilization after equipment transformation and R&D in 2022.

In 2022, the total output of general solid waste in the Baoshan Base was 9.82 million tons, of which 2.37 million tons were put into return-for-production utilization. Except for the compliant disposal of industrial waste, the remaining waste was made into products for social units mainly used in the building materials and metallurgical industries. Compared to 2021, the total output decreased by 11%.

Management by the Dongshan Base for solid waste decrease from the source and product-oriented utilization of solid waste

During the reporting period, the Dongshan Base carried out compliant management of solid waste around decrease from the source, return-for-production utilization, product-oriented utilization, collaborative disposal, and standardized storage of solid waste. The solid waste without iron was mainly consumed and disposed of with existing metallurgical furnaces in the plant. Standards were developed for the elimination and consumption of solid waste without iron. The *Management Measures for Disposal of Secondary Resources and Waste Materials*, the *Regulations for General Environmental Protection Technology (Circular Economy Chapter)*, and other relevant management policies were developed, thereby eliminating and consuming solid waste from stem to stern and improving the compliance of management in all links.

During the reporting period, Baosteel achieved

A comprehensive utilization rate of solid waste of **99.91%**

A return-for-production utilization rate of **30.18%**

100% compliant disposal of hazardous waste

marking an industry-leading level and the best level in its history

During the reporting period, the relevant indicators of raw materials and solid waste in the four bases are shown in the table below:

The input of raw materials and the generation and recycling of solid waste in the four bases in 2022

Indicator	Unit	Data
Raw material consumption		
Iron ore	10,000 tons	8,028
Purchased scrap steel	10,000 tons	756
Other auxiliary materials[8]	10,000 tons	1,612

The generation and recycling of solid waste in the four bases in 2022

Indicator	Unit	Data
Solid waste		
Total generation of solid waste	Ton	31,501,501
Generation of hazardous waste	Ton	622,746
Harmless disposal of hazardous waste	Ton	622,024
Generation of general waste	Ton	30,875,755
Recycling of general waste	Ton	30,855,509
Disposal of general waste	Ton	23,246

[8]Other auxiliary materials include dolomite and limestone, etc.

Circular economy

Guided by the "3R" principle (reduction, reuse, and recycling), Baosteel is committed to improving resource utilization efficiency and reducing resource consumption in operation, and strives to become a technological leader in promoting circular economy and sustainable development among iron and steel enterprises. We keep exploring the potential of scrap steel recycling, promoting green packaging practices, and achieving our circular development mode in an all-round way.

Direct recycling of scrap steel

Baosteel launched the direct recycling business of scrap steel at the end of last year. As of the end of the reporting period, Baosteel has prepared a plan, established a accountability and liaison system, explored and promoted various types of customers according to the plan, and improved the classified management of scrap steel recycling, procurement, and use. We continuously improve our use of low-carbon scrap steel after consumption via technological R&D, such as improving TPC turnover efficiency, TPC scrap addition, ladle capping, etc. We have reduced process heat loss and achieved the goal of using more scrap steel and less molten iron. We have conducted R&D and implementation on the technology of adding scrap steel to blast furnaces, thus further raising the utilization capacity of scrap steel in iron and steel areas.

During the reporting period, Baosteel achieved 251,900 tons of scrap steel recycling and established cooperation with 10 processing centers, 4 waste producing users of the steel of Baosteel, and 4 resource companies/agencies owned by waste producing enterprise in terms of scrap steel recycling. We hope that more downstream customers will join the scrap direct recycling system.

Strategic cooperation on direct supply of scrap steel of silicon steel sheets

To further implement our strategic objectives and keep deepening the cooperation with production waste enterprises, during the reporting period, China Baowu's specialized subsidiary - Ouyeel Southern Branch entered into the 2022 strategic cooperation agreement with Ruizhi Refrigeration Machinery (Dongguan) Co., Ltd., aiming to establish deeper cooperation with Baosteel's Dongshan Base and Ruizhi Group regarding the direct supply of silicon steel sheet scrap steel on a long-term and win-win basis.

Their cooperation has changed the way Ruizhi (Dongguan) used to trade production waste, thus forming a closed-loop cooperation on the entire industrial chain that Ruizhi Group orders from China Baowu, carries out processing, and recycles waste, and laying a solid foundation for comprehensive strategic cooperation in the coming year. Under this industrial chain cooperation mode, the waste produced by Ruizhi (Dongguan) is returned to the Dongshan Base via high-quality supply chain services provided by Ouyeel. A closed-loop mode has been established from waste production to waste use, and a direct delivery channel from the factory to the steel plant has been opened up, which widens the track for China Baowu to build a circular cooperation on the steel industry chain.

Signing Ceremony of Cooperation Agreement

Green packaging

Baosteel controls prohibited/restricted substances throughout the product production process, and implements supplier management for raw and auxiliary materials, including product packaging materials such as steel plate for internal and external protection, iron corner protector, packaging pad/plastic, rust-proof paper, etc. All the product packaging materials comply with EU Directive 94/62/EC on packaging and packaging waste. Baosteel has achieved 100% recycling and reprocessing of product packaging materials shipped with its own processing and distribution system.

- The rust-proof paper and binding tape of steel coils shall be processed into finished board packaging or packaging materials of small coil materials for reuse in view of actual loss and availability.
- Packaging iron sheets, protective rings, and plastic gaskets for steel coils shall be classified and stacked, and social resources shall be regularly sought for recycling and reuse of them.

Processing and Distribution System Achieves the Reuse of Packaging Materials

Waste gas management

In accordance with the *Law of the People's Republic of China on the Prevention and Control of Air Pollution*, the *Implementation Plan for Ultra-Low Emission Transformation of the Steel Industry*, and other relevant regulations and policies, Baosteel strives to improve the quality and effectiveness of ultra-low emission transformation and strengthen the comprehensive control of air pollution. During the reporting period, the Company promoted ultra-low emission transformation and upgrading in multiple aspects such as technology R&D, system optimization and upgrading, and evaluation and testing.

Ultra-low emission transformation of unorganized material transportation, processing, and storage

After closing the raw material yard and belt corridor, promote the transformation of unorganized emission control projects such as ironmaking, coking coal, and secondary steel slag treatment.

Organized ultra-low emission transformation of waste gas

Build facilities such as flue gas desulfurization and coke oven gas fine desulfurization to transform the existing dust system and speed up organized ultra-low emission control.

Advance clean transportation

Take measures such as optimizing logistics routes, increasing the proportion of water transportation, gradually phasing out old vehicles and non-road mobile machinery that do not meet the requirements of ultra-low emission transformation, and updating new energy vehicles to increase the proportion of clean transportation.

Monitoring and evaluation of ultra-low emission

Establish a centralized monitoring system for unorganized emissions in the whole plant, and employ third parties to perform organized monitoring and evaluation work to achieve precise, scientific, and legal pollution control.

The Dongshan Base keeps improving whole-process ultra-low emission management

During the reporting period, the Dongshan Base established an ultra-low emission research team to complete the ultra-low emission transformation of the three blast furnace systems. During the renovation process, the team optimized the unorganized control system, guided and verified the on-site transformation, and organized ultra-low emission assessment and monitoring. As of the end of the reporting period, the Dongshan Base has completed the assessment and monitoring of organized emissions, unorganized emissions, and ultra-low emission from clean transportation in the entire process of the three blast furnace systems, helped all processes and procedures of Zhanjiang Iron and Steel's three blast furnace systems pass the ultra-low emission assessment and monitoring, and publicized the relevant information.

So far, the Dongshan Base has developed and released a normalized control plan for ultra-low emission in order to achieve long-term maintenance of ultra-low emission, and revised 13 management documents, added 1 management standard, revised 4 management standards, and revised 3 environmental protection technical regulations to strengthen environmental management, and established a regular mechanism for ultra-low emission management.

Baosteel's microwave sintering technology successfully tested

During the reporting period, Baosteel conducted technological R&D on microwave sintering technology. The pilot plant for microwave sintering of more than one ton of iron ore has been equipped with the experimental capabilities. The quality of ore obtained by microwave electric heating sintering is equivalent to that obtained by conventional sintering. The emission reduction of gas pollutants from the source was up to 99%, proving that electric heating can achieve the process of iron ore agglomeration.

Electric Heating Achieves Iron Ore Agglomeration

Assessment and monitoring of ultra-low emission in the Baoshan Base

During the reporting period, the Baoshan Base completed 55 ultra-low emission transformation projects and the environmental remediation of 865 areas in sequence, conducted organized and unorganized assessment and monitoring twice, prepared assessment and monitoring reports, and submitted the assessment and monitoring reports to China Iron and Steel Association for public disclosure at the end of the reporting period.

During the transformation, the Baoshan Base vigorously built a centralized monitoring system for unorganized emissions in the entire plant, and set up an integrated platform for unorganized ultra-low emission control with the most comprehensive coverage and functions of the same scale in China. To meet the assessment requirements for class-A enterprise in terms of ultra-low emission, the Baoshan Base has installed 557 TSPs, 57 air microstates, 6 VOCs, 44 VDMs, 94 high-definition cameras, and monitored 5,796 material transportation risk points, 245 dust removal and unloading risk points, 623 unorganized emission sources in production processes, and 102 material storage points in the unorganized source list, thus realizing the integrated control of unorganized emissions throughout the process in production, governance, and monitoring.

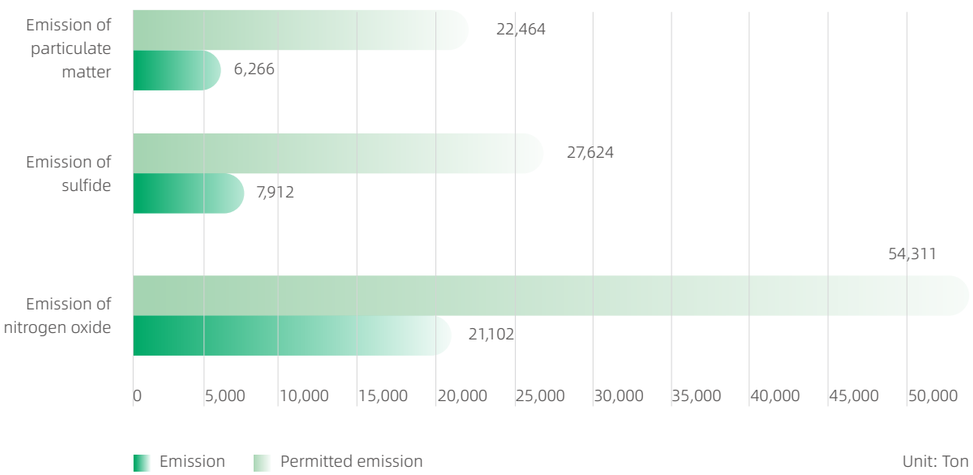
During the reporting period, the clean transportation ratio of each of Baosteel's four bases exceeded 80%, and the emissions of various exhaust pollutants showed a significant improvement compared to previous years.

Emissions of various exhaust gases from four bases and Huangshi Coated Plate in 2022

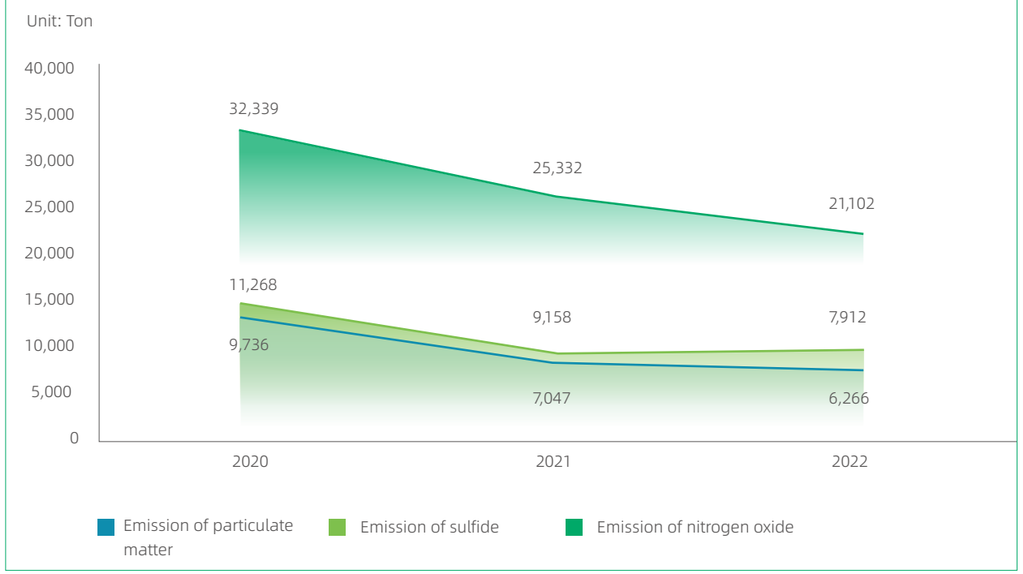
Indicator	Unit	Emission[9]	Permitted emission
Emission of nitrogen oxide	Ton	21,102	54,311
Emission of sulfide	Ton	7,912	27,624
Emission of particulate matter	Ton	6,266	22,464

[9] The emission data of the four bases in 2022 are organized emission data.

Emission level indicators of major pollutants in waste gas



Changes in the emission of major pollutants in waste gas in the past three years



Water resource management

Water resource is not only closely related to our life, but also crucial for the operation of enterprises, especially for steel and iron enterprises. Therefore, Baosteel has launched a range of work on water environment risk management and sustainable water resource utilization, and actively addressed the issue of sustainable development of water resource.

Water environment risk management

Recognizing the significant importance of sustainable water resource risk management for enterprises, Baosteel conducted a comprehensive water resource risk assessment during the reporting period. Baosteel referred to the WWF Risk Filter to obtain quantitative water resource risk scores for water scarcity, flood, and water quality risks faced by each operating location's watershed. In view of the authoritative data sources, the infrastructure construction for flood control and disaster prevention in China, and the ecological protection actions in the Yangtze and Yellow River basins, Baosteel has conducted a preliminary assessment of the water resource risks faced by the existing operating locations, and classified the risks into "low", "medium" and "high". Based on the analysis of "current scenario", "negative scenario", and "positive scenario", Baosteel has forecast various water resource risks that each operating location will face in the future.

According to the internal evaluation results, the current water shortage risks faced by all operation sitets of Baosteel are at a medium to low level. Two operating points may face a water shortage risk that will rise to a medium level in the future (from 2030 to 2050). To address this risk, Baosteel strictly complies with the *Administrative Measures for Water Intake Permits*, regularly conducts water balance testing and water price monitoring to determine the spatiotemporal supply and demand distribution of water resources, and comprehensively identifies water scarcity risk points on the short-term, medium-term, and long-term full value chains, thereby taking water risk management measures in advance, carrying out daily water resource management, and improving water efficiency.

It is also indicated by the evaluation results that flood risks and water quality risks faced by all operation sites of Baosteel are at a medium level. The risks will continue to rise in the future. As such, Baosteel has developed comprehensive monitoring mechanisms and emergency plans for extreme weather disasters, established a comprehensive wastewater discharge detection system, and kept optimizing wastewater zero discharge processes and the management of sewage outlets, so as to contribute our efforts to the global water resource protection initiative while achieving our environmental protection objectives.

In view of the results of water resource risk assessment and forecast, Baosteel will continue to conduct in-depth assessments in the future and develop detailed risk response plans and goals according to its own operating situations.

Protection of the Yangtze River and the Yellow River

The subsidiaries along the Yangtze River and the Yellow River formulated the 2022 "Yangtze River Protection" and "Yellow River Protection" action plans. They have actively carried out planning around "water resource conservation and utilization (reduction from the source, in-depth treatment and reuse), water environment pollution control (rainwater and sewage diversion, zero discharge of wastewater), water ecological shoreline protection (solid waste storage yards, water outlet renovation, and port transportation management)" and other aspects, thereby protecting the Yangtze River and the Yellow River in a systematic manner.

Water resource consumption

Adhering to the principles of "multiple use of one water, graded utilization, and cascaded use", Baosteel has comprehensively reduced water resource consumption and improved the utilization rate of wastewater resources by strengthening water-saving from the source, graded utilization, optimizing water supply network, and strengthening internal water circulation system. During the reporting period, the water recycling rate of all four bases exceeded 98% respectively.

The Baoshan Base's water ecology information platform

During the reporting period, the Baoshan Base continuously conducted one-step construction of a specialized control platform for the water ecology center from the perspectives of production level, operational capacity, and regional management, and strived to create an overall intelligent control platform for the water system, in order to achieve real-time grasp of important operational parameters and indicators in each area. Furthermore, based on the analysis of the production process model, the Baoshan Base timely evaluated the production load, water production indicators, and pipeline balance to raise the overall operational control capability of the water ecology areas and optimize the refined management of water resources.

The water ecology information platform covers a full-process control system from raw water, water production, water supply, to sewage collection, treatment, and discharge. It centrally displays the production situation in water ecology areas, overall pipeline balance, and production and operation indicators of water ecology; achieves centralized coordination of the entire production process of water ecology via centralized control of major equipment; achieves dynamic control of the production process by applying scientific production process models and equipment models.

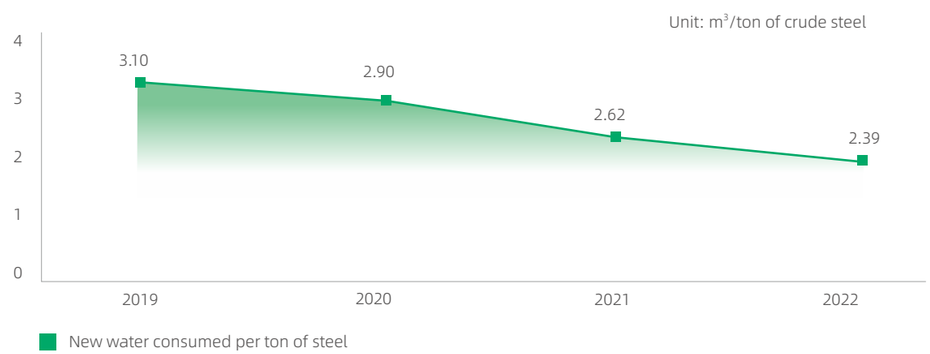
The Baoshan Base has also fully utilized the production control system resources integrated by the water centralized control platform in combination with intelligent technological means such as unmanned ships in moats, online monitoring and identification of alum hydrolysis flocs in the second water treatment plant, and important equipment models, to upgrade the production work mode by integrating various intelligent production technology platforms, creating a production and manufacturing system that integrates the upper and lower parts of water ecology areas, and achieving efficient management of each production unit in view of the characteristics of process production and the relationship between the upstream and downstream systems of production operation.

As of the end of the reporting period, the water resource utilization indicators of Baosteel's four bases are as follows:

Indicators of water resource utilization of four bases

Indicator	Unit	2019	2020	2021	2022
Annual fresh water consumption	1,000,000 m^3	165	150	125	122
New water consumption per ton of steel	m^3/ton of crude steel	3.10	2.90	2.62	2.39
Reduction rate of new water consumption per ton of steel	%	3.9	6.0	9.7	8.8

Trend of new water consumption per ton of steel



Wastewater discharge

In order to reduce its own environmental impact, improve the efficiency of water resource utilization, and address water volume and quality risks, Baosteel keeps advancing the "zero discharge of wastewater" special action, and deepening water resource management by optimizing the management system and constructing zero discharge demonstration zones.

In terms of in-depth wastewater treatment and zero discharge of wastewater, the Phase-V silicon steel wastewater zero discharge demonstration project in the Baoshan Base was completed at the end of 2022. The Qingshan Base's 4 Phase-I projects, namely the in-depth treatment and reuse renovation of silicon steel wastewater and the in-depth treatment and reuse renovation of North Lake wastewater, began in August 2022 and are scheduled to be completed in 2023. Zhanjiang Iron and Steel has maintained zero wastewater discharge, and completed its comprehensive drainage utilization system (Phase II) in March 2022, thereby achieving the utilization of coking wastewater resource, desulfurization wastewater resource, and sintering acid wastewater resource, and further highlighting the "green and environmental protection" business card of Zhanjiang Iron and Steel.

In terms of water efficiency, the Dongshan Base was awarded the title of "2022 Key Water Use Enterprise Water Efficiency 'Leader'", the title of "2022 Industrial Wastewater Recycling Pilot Enterprise (Smart Water Pipe Control)", and the title of "2022 Provincial Water Saving Benchmark Enterprise" by the Ministry of Industry and Information Technology. The Meishan Base was awarded the title of "2021 Water Efficiency 'Leader'".

Comprehensive wastewater management system

Provide comprehensive support for the operation and equipment management of various wastewater treatment stations to improve the level of wastewater treatment

Zero wastewater discharge demonstration zone

Implement and test the projects of zero wastewater discharge demonstration zone

Protection and management of sewage outlets and water bodies

Conduct inspections on riverbank sewage outlets, sort out problems, and take rectification measures to fulfill the commitment of "Yangtze River Protection"

Optimization of water quality control for circulating water

Perform industrial water quality optimization and dynamic monitoring test of the water quality of circulating water system, improve system concentration ratio, reduce process water consumption, and achieve wastewater reduction from the source

Huangshi Coated Plate achieves zero discharge of cold rolling wastewater

In order to implement the strategy of protecting the Yangtze River and constantly improve its own wastewater management level, Huangshi Coated Plate invested RMB 65 million and RMB 187.92 million respectively to build an in-depth wastewater treatment station and a wastewater reuse station, which were put into load before the reporting period. As the first zero discharge project in China to implement separation and extraction of salts for cold rolling wastewater, this project makes use of many innovative technologies to creatively turn cold rolling wastewater into valuable resources for reuse.

In-depth wastewater treatment system

This system performs ozone oxidation and biological treatment of wastewater discharged from 1,800 wastewater treatment stations, further improving the treatment level of the key pollutant indicator CODcr. The annual reduction in wastewater discharge is about 1.5 million tons, and CODcr decreases by about 60 tons per year.

Wastewater recycling system

This system converts the water generated by the in-depth wastewater treatment system into qualified industrial water, which is reused in Baosteel's industrial water system. The annual intake of water from natural water bodies decreases by 1.5 million tons, the annual consumption of hydrochloric acid is down by 2,114 tons, and the annual consumption of liquid alkali is reduced by 2,245 tons.

On-site Facilities

Equipment

The comprehensive drainage utilization system (Phase II) is completed in the Dongshan Base

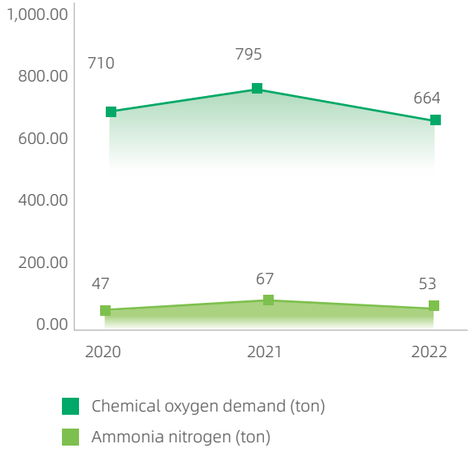
During the reporting period, the comprehensive drainage utilization system (Phase II) was completed for Zhanjiang Iron and Steel, which adopts processes such as ultrafiltration, reverse osmosis, nanofiltration, advanced oxidation, and MVR to achieve complete wastewater reuse, and separation and extraction of salts. With zero discharge of wastewater, this system has achieved the utilization of coking wastewater resource, power generation desulfurization wastewater resource, and sintering acid wastewater resource.

During the reporting period, the wastewater discharge and relevant indicators of Baosteel's four bases and Huangshi Coated Plate are as follows:

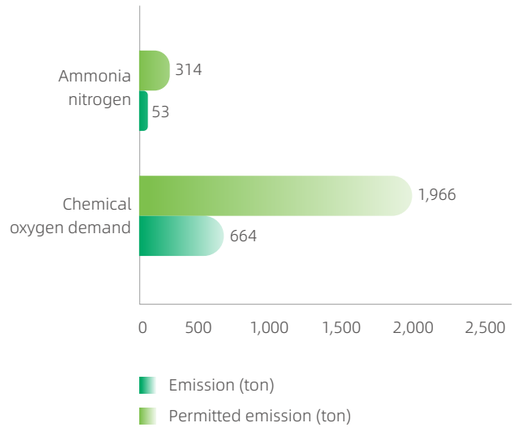
The wastewater discharge and relevant indicators of Baosteel's four bases and Huangshi Coated Plate in 2022

Indicator	Unit	Emission[10]	Permitted emission
Chemical oxygen demand	Ton	664	1,966
Ammonia nitrogen	Ton	53	314
Wastewater discharge	1,000,000 m^3	37	/

Changes in the emission of major pollutants in wastewater in the past three years



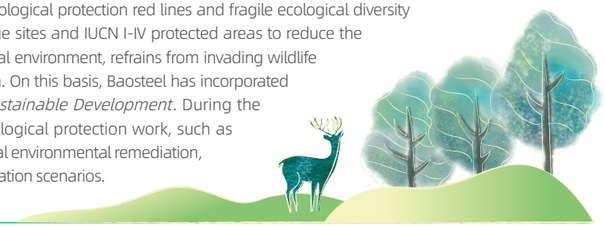
Emission level indicators of major pollutants in wastewater



[10] The COD and ammonia nitrogen emission data of the four bases in 2022 are organized emission data.

Biodiversity

In strict accordance with the relevant laws and regulations in the regions where its operation points are located, Baosteel conducts biodiversity protection and land use assessment for all nodes of the construction and operation process, promises to develop and operate its own projects away from ecological protection red lines and fragile ecological diversity areas, avoids business activities near World Heritage sites and IUCN I-IV protected areas to reduce the impact of production and operation on the ecological environment, refrains from invading wildlife habitats, and contains soil erosion and deforestation. On this basis, Baosteel has incorporated biodiversity protection in the *Basic Policies for Sustainable Development*. During the reporting period, Baosteel carried out a lot of ecological protection work, such as biodiversity risk assessment, participation in ecological environmental remediation, and exploration of waste ecological protection application scenarios.



Biodiversity risk assessment

Assess the ecological diversity risks faced by its operating locations with reference to the WWF Risk Filter

Actively participate in ecological restoration

Participate in compensation for aquatic biological resources and aquatic ecological environment, communicate with the Zhanjiang Mangrove Foundation, and track the planting and restoration of mangroves in Zhanjiang City

During the reporting period, Baosteel referred to the WWF Risk Filter, and obtained intrinsic risk scores for multiple sub-indicators such as biodiversity importance, watershed physical risk, and ecosystem dependency in each operating location in terms of the degree of dependence of its own operations on the ecological environment and the impact of its operations on the ecological environment. In view of the realities of waste-free city construction, Baosteel has conducted a preliminary assessment of the biodiversity risks faced by various operating locations in various dimensions. The assessment results indicate that all operating points of Baosteel are facing medium to low risks.

Baosteel has carried out a range of work to address biodiversity risks:

- Evaluate and analyze the biodiversity status of the operating locations in view of the IUCN Red List and National Protected Species Register, and develop management and protection plans
- Strictly comply with the Law of the People's Republic of China on Environmental Impact Assessment and other relevant laws and regulations, and ensure that new projects are far away from natural reserves
- Build a waste-free urban steel plant with ultra-low waste gas emission, zero wastewater discharge, and "solid waste shall be disposed of in the plant". Avoid negative impacts on the natural environment
- Test the imported raw materials to prevent invasion of foreign species
- Set up a zoo in the Baoshan Base's plant area to raise sika deer and peacocks, and ensure that the air, water quality, and noise in the plant area are consistent with living environment required by wild animals.

In the future, Baosteel will conduct in-depth research, take into account its own business and operational status, and implement the biodiversity conservation plan featured in short-term response and long-term contribution:

In the short term, we will develop a biodiversity risk mitigation plan for key risk areas, perform targeted and extensive work to protect and compensate the ecological environment, carry out ecological protection in the Yangtze and Yellow River basins, actively plan and systematically govern underground water detection in solid waste storage yards, qualified discharge of wastewater, and management of port transportation, thereby avoiding any damage to biodiversity within our own operational scope

In the long term, we will manage to optimize our operations and supply chain layout to ensure that our operating locations are further away from biodiversity vulnerable areas, and require our supplier partners and transportation chains to stay away from biodiversity vulnerable areas. We will also seek external cooperation opportunities to make more profound contributions to biodiversity conservation and ecological environment restoration

The ecological industry revitalization mode in Ning'er County, Pu'er City, Yunnan Province

Extensive industrial revitalization often brings disasters to the ecological environment and biodiversity due to its predatory development. Therefore, exploring the path of ecological industry revitalization and achieving the unity of revitalizing industry and protecting ecological diversity is of great significance to the protection of ecological diversity.

Adhering to this idea, Baosteel has contributed to Pu'er City of Yunnan Province, the national green economy experimental demonstration zone, including implementing the "carbon peaking and carbon neutrality revitalization" carbon sink development and carbon inclusive market construction project, participating in the coffee industry revitalization action, and helping introduce Shanghai Foresight Foundation to support local ecological tea garden projects, and exploring the local ecological value to assist in industry revitalization and contribute its strength to ecological protection.

In the coffee industry revitalization action, the team "Baowu Teacher" formed by the Youth League Committee of China Baowu participated in the 2022 UN Global Compact's Young SDG Innovators Program and the 2nd China Youth SDG Innovation Challenge Competition, and won the SDG Innovative Solution Award and the "Most Innovative Solution Award".

Tea Tree Transplantation Teaching in the Ecological Tea Garden

05 Endeavor

Build a Strong Enterprise with Talent

- Employee overview
- Safeguarding of rights and interests
- Salary welfare
- Talent development
- Health and safety
- Employee care

Baosteel adheres to the talent-centric development philosophy in creating a work environment that trusts, respects, treats, and tolerates talented people. In the process of deeply implementing the strategy of strengthening the enterprise with talent in the new era, the Company adheres to promoting fair employment, protecting employees' rights and interests, safeguarding employees' physical and mental health, fully leveraging human capital, and fortifying the talent construction of iron and steel enterprises.

Employee overview

Baosteel attaches great importance to sustainable labor relations. We have issued the *Code of Conduct of Baoshan Iron & Steel*, the *Human Rights Basic Policy* and other internal management policies to resolutely eliminate violations such as recruitment of child labor and forced labor. In the recruitment process, we never tolerate discriminatory behaviors based on factors such as gender, age, religion, ethnicity, family, and health status. We oppose all forms of harassment and are committed to safeguarding the rights and interests of every employee with an public and transparent management system.

Baoshan Iron & Steel attaches great importance to safeguarding employees' human rights, and respects and safeguards all human rights in accordance with international standards including the *Universal Declaration of Human Rights*. We regularly provide training on human rights and labor rights for all employees. According to the RBA requirements, we conduct a special social responsibility audit every two years on human rights and labor in all our plants. During the reporting period, there was no event of child labor, forced labor, human trafficking, discrimination and harassment in Baoshan Iron & Steel.

Indicator	Unit	2021	2022
Total number of employees	Person	45,405	44,445
By gender			
Male	%	88	88
Female	%	12	12
Proportion of women in senior management positions	%	7.0	7.5
By age			
Below 30	%	16	17
30-40	%	32	32
40-50	%	34	33
Above 50	%	18	18
By nationality			
China	%	99.99	99.99
Overseas	%	0.01	0.01
Minority groups/vulnerable groups			
Minority ethnic groups (ethnic minorities)	%	1.94	2.40
Vulnerable groups	%	0.80	0.71
Employment			
Newly hired employees	Person	1,008	2,674
Turnover			
The number of employees who voluntarily resign	Person	790	213
Proportion of resigned employees to the total number of employees	%	1.74	0.45

Safeguarding of rights and interests

Baosteel highlights employee equality and strictly abides by the Trade Union Law of the People's Republic of China, the Regulations on Collective Contract, and other laws and regulations in employment. We periodically revise the *Labor Contract Management Measures* and other internal policies to continuously promote the best practices for safeguarding employees' rights and interests. The Company fully leverages the positive role of the trade union, provides channels for all our employees to understand, participate in, and supervise the trade union, and encourages them to join the trade union. The trade union has signed the *2021-2022 Collective Agreement of Baoshan Iron & Steel Co., Ltd.* on behalf of the employees to safeguard their legitimate rights and interests.

Safeguarding of employees' rights and interests

In 2022, all Baosteel's in-service employees were members of the trade union

100%

Signed a collective agreement with the Company

100%

Training on employees' rights and interests including the employment risk prevention training covered all the employees

100%

Working hour

According to the *Labor Law of the People's Republic of China*, the Company implements a standard working hour system of up to 8 hours per day and an average of 44 hours per week for regular day shift employees, and a special working hour system approved by the labor administrative authorities for the employees who work two day shifts and two night shifts in a four-day cycle.

Baosteel respects and actively listens to the voices of employees, and takes targeted measures in view of the sound trade union mechanism and the *Administrative Measures for Employee Complaints and Appeals*, so as to jointly promote long-term development. Meanwhile, we provide all employees with the "8088 Appeal Service Hotline" and other smooth appeal channels including telephone, letter, visit, etc., and manages to understand and help employees solve problems, thereby safeguarding their right of communication.

Appeal service hotline

8088

Solution to employees' appeals

Accusation

Evaluate employee's appeals collectively before handling them

Appeal and complaint

Handle or transfer the appeals within three working days after registration according to relevant provisions

Labor dispute

Set up a labor dispute mediation committee to be responsible for investigating and verifying

Collect employees' thoughts and improve employee satisfaction

The trade union of Baosteel fully plays its role as a bridge and link in collecting and tracking the thoughts of employees twice a year, summarizing opinions and suggestions of employees, and submitting them to the Party committee. Relevant functional departments are responsible for performing such work and promoting it to employees. In 2022, in the forms of special symposium, on-site visit, employee interview, merged meeting, we collected and summarized approximately 468 employee's thoughts, and required the functional departments to provide answers to the highlighted opinions, thereby actively responding to employees' appeals and effectively safeguarding their interests.

Deepen the management of employees' rights and interests and conduct engagement survey

Baosteel conducts its engagement survey based on Kincentric's engagement model. The engagement questionnaire includes multiple drivers such as work experience, life balance, learning and development, diversity and inclusiveness, aiming to understand the potential impact of work environment on employees, prevent and reduce the possibility of damage to employees' rights and interests, and raise their motivation and engagement.

During the reporting period, a total of 22,464 employees participated in the engagement survey, with 96% of employees filling out the questionnaire. The employee engagement reached 76%, which was at a moderate level in the Chinese market.

A total of

22,464 employees

participated in the engagement survey, with

96%

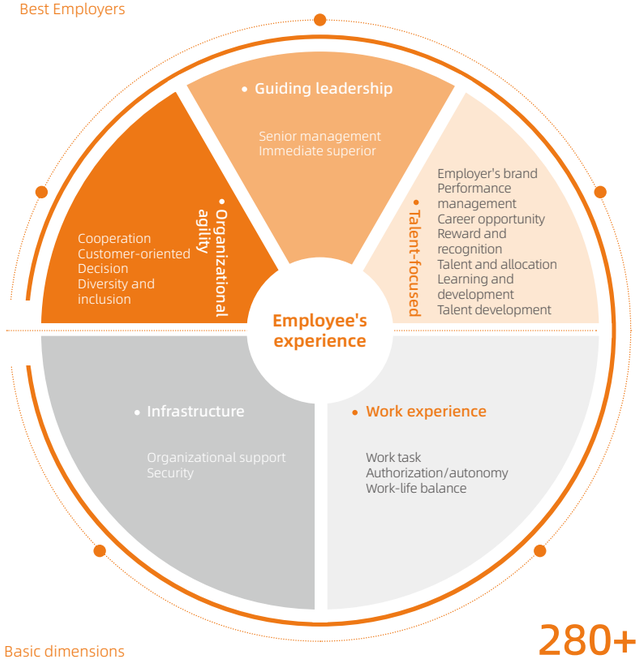
of employees filling out the questionnaire. The employee engagement reached

76%

Drivers of engagement

Dimensions

KINCENTRIC Best Employers



Basic dimensions

*Talent development is a customized dimension for Baoshan Iron & Steel

280+

Question bank for satisfaction

Salary welfare

Baosteel is committed to creating a salary system that is "competitive externally and fair internally". In view of a sound salary management standard system and operational mechanism, as well as the actual operational situations, we have formulated welfare policies that highlight both value and fairness. We also keep optimizing the salary management measures, fully leverage the incentive effect of the salary system on talented-people, thereby luring and retaining outstanding talented-people.

In order to better serve our employees, we adhere to the salary distribution principle of "classified assessment and precise motivation"; implement performance-oriented salary incentive policies that link performance to salary on the basis of equal pay for equal work for male and female employees; and provide various salary bonuses, subsidies, and medium- and long-term incentives, aiming to evoke employees' motivation and creativity with reasonable salary distribution.

Compensation benefits	
Salary and bonus	Basic compensation, position compensation, performance bonus, performance bonus, special incentive, and technology reward
Allowances and subsidies	Job allowance, relocation subsidy, traffic subsidy, meal subsidy, rental subsidy, maternity subsidy, travel subsidy, high-temperature subsidy, annual condolence subsidy, hospitalization subsidy
Medium- and long-term incentives	Equity incentive, profit sharing incentive, growth incentive for young backbone R&D talented persons, risk collateral incentive for value creation team, and cumulative contribution incentive for technological innovation

Baosteel keeps improving the benefits for employees on the basis of relevant national statutory standards. To raise employees happiness and fulfillment, we not only provide statutory holidays for employees in accordance with the law, but also offer paid leave, marriage leave, maternity leave, personal leave, company leave, and parental leave for them. In view of our operational situation, Baoshan Iron & Steel provides a wide range of characteristic benefits such as subsidies, lifestyle benefits, special festival benefits, and self-established benefits to fully meet the work and life needs of employees. Meanwhile, we attach importance to the needs of female employees. In addition to basic benefits such as parental leave, the Company provides female employees with longer maternity leave to assist them in achieving a better balance between life and work.

What's more, adhering to the principle of "inclusiveness + precision", we safeguard employees' insurance plans. Based on accident comprehensive insurance and employees' own insurance resources, we are seeking a new mode of group purchased value-added insurance to enrich insurance plans for our employees. In 2022, all our employees purchased the social security insurances.

100%

of our employees purchase the social security insurances

Non-compensation benefits	
Various guarantees	Pension insurance, medical insurance (including maternity insurance), unemployment insurance, work-related injury insurance, provident fund, supplementary provident fund, enterprise annuity, comprehensive accident insurance, one million medical insurance, union mutual assistance insurance, employee cafeteria, and physical examination
Holiday and leave	Legal holidays and weekends; paid leave; home leave; family leave; recuperation leave
Programs	Corporate pension program, supplementary housing provident fund, health insurance program, physical examinations, and free work lunch and other corporate benefits

Talent development

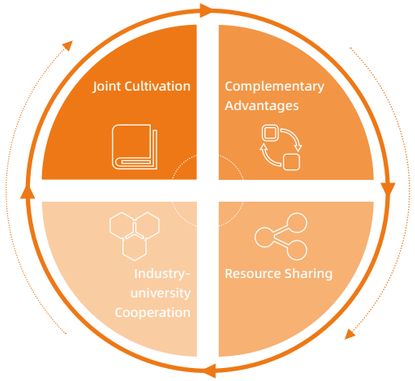
Baosteel is people-oriented and always adheres to the concept of "talent is the primary productive force". The Company pays attention to the career development of employees and attaches great importance to their capability development. We manage to achieve growth together with employees by improving our recruitment and training system and mechanisms, as well as taking the path of sustainable development.

Employee recruitment

Baosteel regards promoting employment as a key task to fulfill its corporate social responsibility. The Company always adheres to the concept of "talent drives development; development creates talented persons", and actively carries out online and offline recruitment activities through campus recruitment, social recruitment and other channels to introduce talented people.

Aiming to recruit outstanding talented persons from different groups, the Company has carried out the "outstanding talent" recruitment program, the innovative "dual-system" school-enterprise cooperation mode, and introduction of high-end overseas talents. Thanks to brand building and high-quality talent recruitment, the Company's talent siphon effect is emerging. In 2022, the Company successfully completed its "outstanding talent" recruitment program, extended the "dual-system" university-enterprise cooperation mode to more universities. The overall recruitment scale reached a new high in nearly three years. The sustainable development of our human resources is effectively promoted through continuous recruitment efforts.

University-enterprise Cooperation Principle

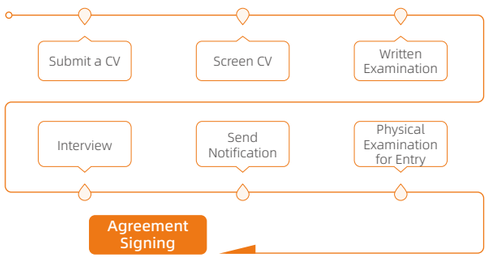


Baosteel and Shanghai Dianji University Signed a School-enterprise Cooperation Agreement

In 2022, Baosteel and Shanghai Dianji University have borrowed the German "dual system" VET model to deepen university-enterprise cooperation. We have set up a leading group and a school working group of university-enterprise cooperation for school running, and set up a special fund for "Baosteel class" to carry out "order-based" training for higher vocational education in the direction of intelligent equipment control and operation and maintenance, and jointly cultivate high-quality skilled talents.

In order to relieve the employment pressure of the society, the Company always carries out social recruitment activities in the spirit of fairness, equality and transparency. We continuously reserve high-quality talents for the Company by publicly releasing recruitment information through our official website or cooperating with other platforms.

Social Recruitment Process of Baosteel



Career Development

Baosteel is committed to standardizing the Company's promotion system and process, continuously optimizing the construction of career promotion paths for employees, and creating a fair, open and transparent competition mechanism. We divide occupations into three categories, namely skilled personnel, technical personnel and management personnel, and set career development levels and qualification standards through each occupational category to facilitate employees to set career goals with personal characteristics and enhance their professionalism. Meanwhile, we regularly conduct performance evaluations for all employees every year to stimulate their vitality.

Employee career path:

Slills Expert → Chief Operation → Senior Operation → Main Operation → General Operation → Preparation Post

Technical employee career path:

Technical Assistant → Regional Engineer → Engineer → Senior Engineer → Chief Engineer

Management employee career path:

Line Manager → Branch Manager → Deputy of the plant → Director of the plant

We focus on the career planning of our employees and have developed diversified career development paths, providing special training for different types and levels of employees in four areas: "leadership", "technology", "field", and "internationalization". During the reporting period, the Company carried out a new round of centralized evaluation and recruitment of chief masters and skill masters, creating a team of more than 300 chiefs and 70 skill masters, and further optimizing the structure of the Company's high-end technical personnel. In addition, we will continue to advance the selection and recruitment of "Baowu Scientists" in 2022 to motivate outstanding talents to make contributions to Baosteel.

Management Performance Training of Baosteel

In February 2022, the Completion Ceremony of Baosteel's Management Personnel Performance Training (general manager class for directly- managed cadres and general manager class for tertiary units) was held at Ma Steel Group's Education and Training Center. This training mainly cultivated the dimensions of political awareness and political ability of the participants, enhanced their business ability, leadership ability and practical ability, and met the demand for entrepreneurial talents of Baosteel to create a world first-class great enterprise.

Management Personnel Performance Training Completion Ceremony Site

Employee Training

Baosteel takes talent team as the core competitiveness of the enterprise and the driving force of future development, creates opportunities for employees to grow continuously, builds a perfect training system for employees, and formulates the *Administrative Measures for Employees' Sparetime Self-study and Training*. In addition, the Company provides systematic support to broaden the employees' career growth path by creating a rich, flexible and diversified training course platform.

Training Program Classification of Baosteel

Special Technical Training
- Technical Personnel Training
- Professional Technical Skills Training
- Skill Identification and Training in Computer Language Tools and Methods

Management Competence Training
- Leadership and Management Training
- Management Level Training

Culture Promotion and Job Foundation Explanation
- Corporate Culture Training
- On-the-job Training

In 2022, Baosteel upgraded and iterated the "159" Talent Project based on the diversified training mechanism and the goal of "building a high level of talents in the steel industry", and launched "five systems and five initiatives" to fully allocate and strengthen human resources, strengthen the internationalization level of talents and increase the proportion of composite talents by giving full play to the advantages of talents.

"159" Talent Project of Baosteel

Nine Program
- Operation Management Training Program
- Leading Program
- Engineer Excellence Training Program
- Youth Talent Program
- Deep Blue Program
- Craftsman Training Program
- Smart Operation and Maintenance Talent Training Program
- Digital Intelligence Talent Development Program
- Green Development Talent Program

Baosteel Launched "five systems and five initiatives"

Five Systems
- Continuously optimize the income distribution mechanism of core technical skill talents
- Actively create an academic exchange platform for core technical talents
- Deeply explore the open competition mechanism
- Formulate digital intelligence talent development program in a systematic way
- Vigorously promote flexible working system for core research staff

Five Initiatives
- Put efforts into building the Company's digital knowledge asset base and internal trainer team
- Increase the benefit sharing of research projects
- Deeply promote the "value creation team" risk collateral incentive system
- Expand the implementation area of "Accumulated Technology Innovation Contribution Fund"
- Upgrade multi-base staff mobility support policy

At the same time, the Company empowers employees on demand, combining talent development goals to maximize their potential. We continuously develop based on on-site research and develop appropriate training programs for our employees. We use a training visualization and analysis platform to provide online statistics and management of the entire training process for internal staff. During the reporting period, the total number of employee training sessions was 1.68 million, the total number of employee training hours was 5.61 million, and the average training hours for employees was 144.

Talent Development Goal

By 2027, the Company is committed to achieving the goal, namely a number of academicians or equivalent level of strategic scientists, a dozen Baowu scientists or high-level composite talent, a hundred-level industry leaders, thousands of outstanding engineers, 10,000-level highly skilled personnel.

Steel Pipe & Bar Business Division holds various online training activities

The Party Committee of the business division attaches great importance to employee training, actively planning and organizing online cloud training, and guiding employees to properly arrange their work, life and study.

- For in-home employees: combined with the annual key work and the direction of employee capacity enhancement, the list of "cloud training" network compulsory courses is formulated to enhance their capacities in creating value for the Company;
- For technical talents: Five "cloud classes" are held, covering green development, management and finance, and product technology, with a total of nearly 1,600 trainers;
- For the youth: Eight digital project seminars are conducted around the "Digital Intelligence Studio", with a total of 93 participants; two digital "micro class" online training sessions, with a total of about 450 participants;
- For the management: A pilot training course is held to improve the management ability of our managers. At the same time, training and seminars on lean operations are conducted, with nearly 700 participants;
- Secondary unit of business division: conducted 12 online training programs on product sales, manufacturing, quality, and the safety performance of operations managers, with a total of nearly 1,200 participants.

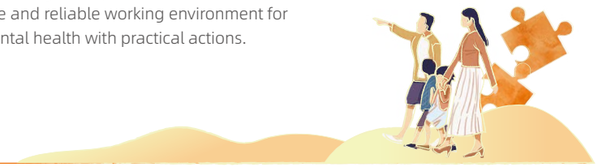
Skills Competition Final of Cold rolling Steel Workers of Baosteel

In September 2022, in order to improve the professional skills of employees, the Skills Competition Final of Cold rolling Steel Workers of Baosteel was successfully held in Zhanjiang Iron and Steel. 61 players (including video) from 8 units, including cold rolling mill of Baosteel's four bases, Silicon Steel Department, Baori Auto Plate and Guangzhou JFE, participated in the competition. The Company promotes learning by competition, increases the training of rolling steel talents, and vigorously improves the business ability and skill level of rolling steel practitioners.

Skills Competition Final Site of Cold rolling Steel Workers of Baosteel

Health and safety

Baosteel relies on a sound governance structure, works with subordinate units and related parties to continuously promote safety management, deepens the results of health and safety training and drills, creates a safe and reliable working environment for employees, and safeguards their physical and mental health with practical actions.



Health and safety management framework

Baosteel strictly abides by the *Production Safety Law of the People's Republic of China*, the *The Law of the People's Republic of China on the Prevention and Control of Occupational Diseases* and other laws and regulations applicable to the place of operation, sets health and safety goals in line with the actual development needs of the enterprise, establishes a safety committee and gives full play to its function of coordination and review in the field of health and safety, thus laying the organizational foundation for the implementation of work safety.

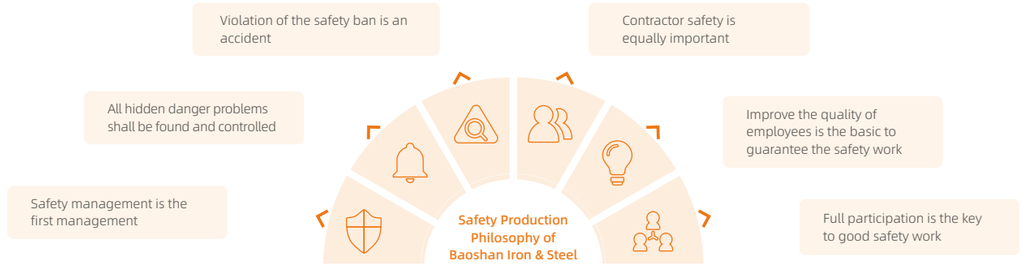
According to the results of internal organization adjustment, the Company further revised the internal system of *All Staff Production Safety Responsibility System* during the reporting period, clarified the responsibilities of the Production Safety Committee, Operation Center, Safety and Security Department and other departments in health and safety, implemented the safety responsibilities to individuals and departments, and comprehensively improved the safety management level of each department. As of the end of the reporting period, Baosteel did not have any major or above production safety accidents.

In order to improve the level of safety production management, Baosteel sets corresponding medium and long-term safety production targets and plans in each year in accordance with the actual situation, driving management efficiency with targets and ensuring compliance with initiatives through planning. In 2022, Baosteel had 7 production safety accidents and 0.026 employee injury frequency rate (including direct employees and contract employees), which has successfully reached this annual production safety target and laid a good foundation for reaching the target in future years.

	Unit	2021	2022
Number of production safety accidents	Nr.	11	7
wherein: Employees of the Company	Nr.	3	3
Employee of the contractor	Nr.	8	4
Employee injury frequency in workplace accidents	Number of injuries in millions of man-hours	0.038	0.026
Wherein: Employees of the Company	Number of injuries in millions of man-hours	0.040	0.035
Employee of the contractor	Number of injuries in millions of man-hours	0.035	0.023
Coverage of occupational health examinations	%	100	100
Number of dangerous sign events	Person	3	2
Wherein: Employees of the Company	Person	0	1
Employee of the contractor	Person	3	1

Safety management guarantee

Baosteel has always regarded safety as the focus of production work carried out by the enterprise. Rooted in the six production safety concepts and the management principles of applicability, necessity and effectiveness, the company strictly implements the responsibility system for safety in production for all employees and guards the health and safety of employees in all aspects and from many angles. The Company benchmarked with the national level enterprise standard, actively organized the declaration of national-level standardized enterprise, and won the recognition of the national authority with the excellent safety management level.



In 2022, in the face of the challenges brought by the change of the grassroots organization and the change of the "three integrations" of the equipment system, Baosteelcomprehensively carried out the combing and identification of the existing safety management documents and standards, and completed the revision and improvement of 10 management systems and standards, including the *Safety Listing Management Procedures for Equipment Maintenance and Self-Powered Projects* and *Safety Management Standards for Limited Space Operations*.

In terms of safety accident management, Baosteel has established and continued to improve the work mechanism of accident inversion with safety commitment and special risk and hidden danger investigation, and optimized the internal system of *Safety Accident Reporting, Investigation and Handling Management Procedures* to strictly regulate the management of handling safety accidents such as production safety accidents, fire accidents, public security incidents and traffic accidents in the Company and reduce the risk of repetitive accidents. In 2022, the Company accumulated 7 production safety accidents, the total number and severity of accidents decreased compared with last year, and the relevant accidents have been carried out to rectify the corresponding measures.

Safety Accident Handling Process

Safety Accident Rectification Measures of Baosteel

Organize the signing of the safety letter of commitment

- Identify that all hazardous operators sign a safety letter of commitment
- Carry out special rectification work to strengthen safety measures and supervision of the operation process, and continuously increase on-site control efforts

Implement the subject responsibility of security

- For the combination of man-machine operation management is not in place, illegal start equipment and other issues, the confirmation of the safety conditions before starting equipment shall be implemented strictly
- Carry out functional billing safety management inspection
- Strengthen subcontracting safety control

Strengthen the special rectification work

- Focus on the special inspection and rectification activities of electricity equipment and facilities
- Promote fire safety special rectification to ensure controlled fire safety at the end of the year
- Carry out special inspection of safety risks of environmental dust collectors and silo equipment and facilities

Regulate closed-loop management

- Revised the *Safety Accident Reporting, Investigation and Handling Management Procedures* and required each unit to strictly implement all aspects of accident reporting, investigation, accountability treatment as well as rectification and verification to strictly regulate the closed-loop management of accidents

In addition, we also promoted the layout of intelligent safety management during the reporting period, and actively promoted the construction of Intelligent Security Management Information System (ISMIS) projects in the areas of safety production, such as safety, occupational health, fire prevention and security, to enhance the efficiency of safety management and optimize the safety production process with information technology. In the future, the Company will actively implement the operation of each module of the system and carry out integrated big data analysis in order to realize intelligent warning, personnel portraits and other intelligent functions.

Security risk and hidden danger identification

Baosteel actively carries out hidden danger identification and inspection to minimize the possible risks in the field of production safety. In 2022, based on the safety management information system, we carried out hidden danger inspection work in nine aspects, including high-temperature molten metal control, gas safety, hazardous chemical safety, construction safety, and maintenance safety, and guaranteed the effective implementation of safety production inspection work in each unit through multi-platform analysis such as weekly share reports, quarterly meetings, and performance evaluation. During the reporting period, a total of 51,239 safety issues was identified in each base subsidiary, and the completion rate of rectification exceeded 95%.

100-day Clearing Activity

In 2022, Baosteel carried out a "100-day Clearing Activity" to address issues such as gas hazard areas, compliance with related equipment and facilities, and inadequate process control of liquid molten metal, etc. A total of 5,450 locations were identified and 135 issues related to major accident hidden danger were sorted out. As of the end of the reporting period, all relevant issues have been rectified and completed. In the future, Baosteel will further consolidate the results of the safety production inspection and the "100 days clearing" action, and integrate the safety production inspection and the safety inspection of "Eight Articles for Steel Industry and Six Articles for Powder Industry" into the regular control mechanism.

Cumulative mapping of
5,450 sites
Sorting out
135 issues
related to major accident hidden danger

In accordance with the national laws and regulations on production safety and in combination with the actual situation of safety risks in the Company's industry, Baosteel formulates corresponding safety emergency plans, and carries out regular drills for major safety risks, flood prevention and safety control points of high-risk operations to enhance the ability of individuals and organizations to deal with unexpected safety risks and strengthen the safety foundation of the enterprise.

Conduct safety emergency drills to improve risk response capabilities

In November 2022, during the firefighting month, Baosteel, together with its Emergency Rescue Center, Fire and Rescue Detachment, Public Security Police Station and other organizations, organized a joint drill of the belt machine fire emergency plan, thus testing the effectiveness of the relevant plan and the ability of each organization to deal with fire accidents. At the same time, Baosteel organized a comprehensive drill of gas poisoning and fire accident emergency plan for construction workers at the construction project site, to enhance employees' knowledge of fire safety and gas safety and strengthen their skills of disaster avoidance and rescue in the actual battle.

Occupational health

Baosteel continuously strengthens occupational protection measures from the perspective of employees' needs, and protects employees' physical and mental health by equipping relevant equipment, conducting training on the use of equipment, medical checkups, and testing occupational disease hazards. Among them, we make prevention of occupational diseases a priority and occupational health checkups an auxiliary work, and conduct job occupational disease hazard factor testing and comprehensive physical examination for employees on duty, and set a safety target of ≥ 95.4% qualified rate of testing as well as 100% medical examination rate. In 2022, the qualified rate of job occupational disease hazard factor testing successfully reached 96.34% and the rate of occupational health physical examination reached 100%, which effectively improved the management efficiency of occupational health and safety and effectively strengthened employees' awareness of occupational health and safety management.

"Compatibility Verification of Hearing Protection Ear Canal" Testing Workshop

In November 2022, Baosteel invited a team of 3M hearing protection experts from Shanghai to conduct a seminar on the "Compatibility Verification of Hearing Protection Ear Canal" test, and had an in-depth exchange and discussion on the follow-up management initiatives for occupational injury personnel, and formulated the follow-up training for them on the "Compatibility Verification of Hearing Protection Ear Canal" test and the proper wearing of ear plugs, so as to continuously enhance the awareness of occupational injury employees on protection.

Collaboration unit safety management

As a responsible enterprise, Baosteel, in compliance with the *General Rules for Human Resources of Cooperative Suppliers* and the "4 S" management mode of "same system, same standard, same promotion and same evaluation and assessment". In addition, the Company will continue to improve its own safety management system, establish a grid area responsibility map and conduct quarterly safety performance evaluation of suppliers to promote the collaboration units and suppliers to improve their safety management performance, and seriously deal with continuous violations of the ban to reduce the impact of safety risks on the industrial chain.

Safety Management Measures of Suppliers

Scope and responsibility of safety management	• Incorporate the content of safety-related responsibilities for foreign economic contracts into company management standards • Actively promote the division of regional safety responsibilities, clarify the scope of responsibility of 26 units in Baoshan base, and consolidate regional safety management
Measures of safety management	• Organization of safety education • Promote the overhaul of high-risk projects "downgraded" • Remove unsafe factors from the perspective of collaborators and enhance operational safety conditions • Conduct safety management diagnosis of collaborative projects such as new models
Assessment of safety management	• Implement assessment deductions for 28 collaborative units, with a cumulative assessment deduction of 246 points, and assisted in the supervision and rectification

Safety culture construction

Baosteel formulates relevant emergency plans based on the safety risks that may be faced in the daily operation of the enterprise from the perspective of safety awareness, and promotes the effective combination of safety culture and practical application of employees by conducting safety training, competitions and drills, so that the safety concept is rooted in the heart of every employee. During the reporting period, the Company invested a total of RMB454 million in safety production, and trained 483,469 people in safety, with a safety training coverage rate of 100%.

Baosteel has prepared and issued this year's *Work Plan for Safety Production Training*, and at the same time, it has actively worked together with third-party organizations to propose training requirements for regular employees, contract employees, professional and technical personnel and managers by categories, such as safety "three lectures", physical VR, regulations and standards, performance practices and job skills, to continuously standardize employee safety training and enhance the effectiveness of employee safety training.

The Company invested a total of

RMB454 million

in safety production

Safety Training and Cultural Awareness Campaign in 2022

Policy Interpretation	Jointly with experts and leaders from Sinosteel Safety and Environment Institute, Emergency Management Bureau, Market Management Bureau and Fire Department, the Company conducted lectures on topics such as production safety law, 15 measures of production safety, steelmaking safety procedures, accident prevention and emergency response, and employee unsafe behavior management and improvement. Combined with the month of production safety activities, the Company invited the city of emergency management experts to carry out training on the knowledge of the new safety law, "15 Measures" to focus on the safety production.
Safety Production	Organized managers and safety personnel (302 in total) to actively participate in the seminar "Analysis of Psychological Factors in Safety Production and Management Countermeasures" to expand safety management methods. According to the risk characteristics of metallurgical industry and enterprise standardization, the Company invited senior experts from Sinosteel Safety and Environmental Protection Institute to conduct a series of training such as *Steelmaking Safety Regulations*, *Rolling Steel Safety Regulations*, *Gas Safety Regulations* and *Employee Unsafe Behavior Management and Improvement* in batches through video and other means. Learn from Gomez Safety Rules and hang safety-related slogans and banners in places where employees are relatively concentrated. Organize managers at all levels to study and discuss safety management related expertise such as liquid molten metal and gas safety regulations, decompose and implement the responsibility of "managing professional safety", and continuously improve safety management level and performance.
Occupational Health	Conduct occupational health network training for first-line managers and safety personnel to improve occupational health management.
Knowledge Contest	During the Safety Month, the Baoshan Base launched the 2022 Staff Safety Skills Competition, which focused on the Company's safety production situation and task requirements to carry out "hands-on practice" and "practical competition", with a total of more than 6,600 quizzes by regular employees and collaborators. Deeply organize and carry out the safety independent management activities of the 2022 "Health and Safety Cup" competition, take the collection and evaluation of cases as a focus, guide the employees of the team based on the site, find the hidden dangers in all aspects.

Hazardous chemicals management

Strictly following the requirements of *Identification of Major Hazard Installations for Hazardous Chemicals* (GB 18218) and other related regulations, Baosteel steadily carries out the management and evaluation of hazardous chemicals and major danger sources involved in the production process of the enterprise, lists the list of major danger sources and regularly carries out relevant inspections to ensure safe and compliant production.

Hazardous Chemical Management of Baosteel

Hazardous chemical diagnosis and assessment

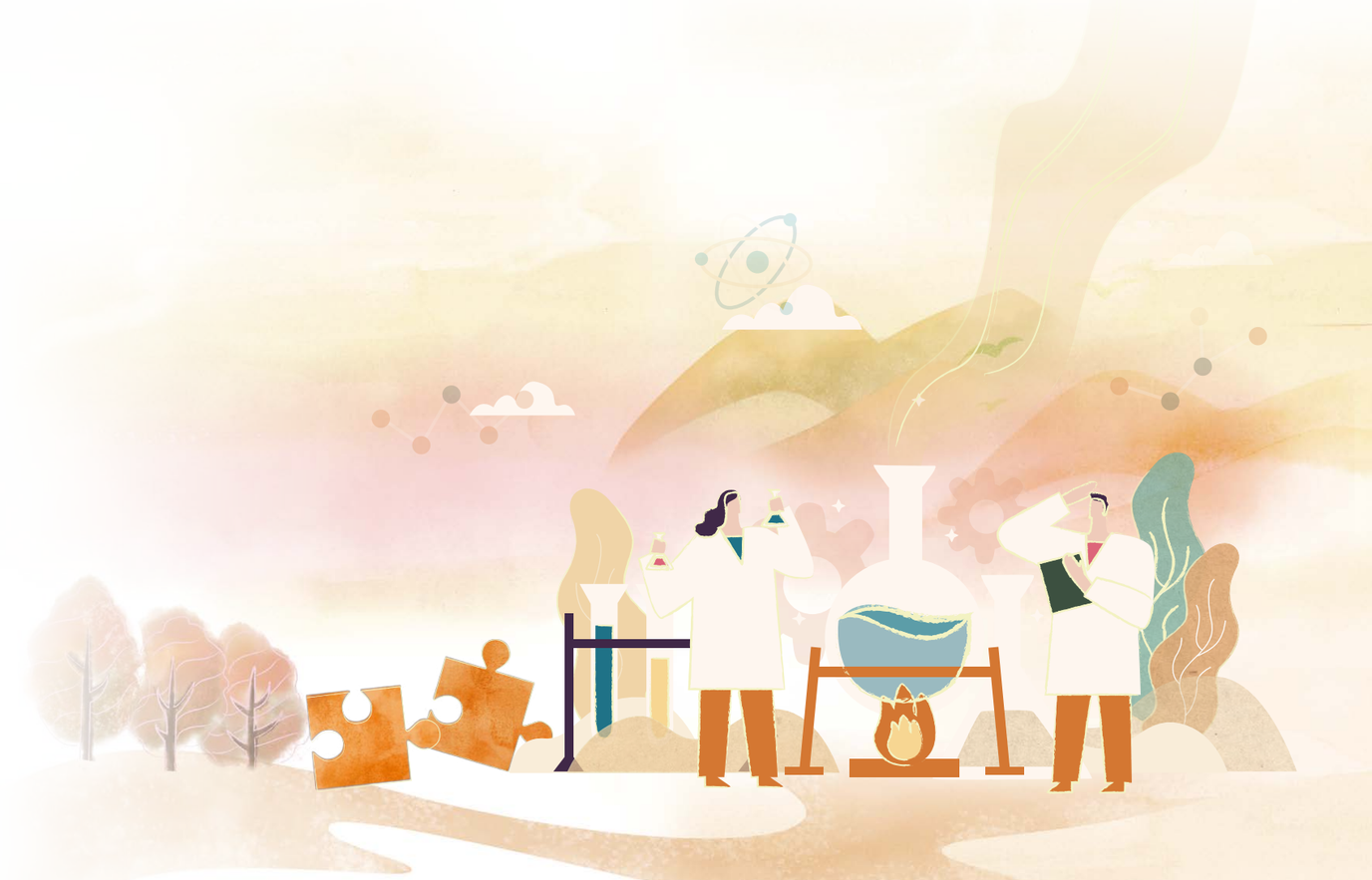
Hire a team of external experts to carry out diagnosis and evaluation of hazardous chemicals and major hazards at Baoshan Base in terms of systems and procedures, equipment and facilities, operational safety, etc. A total of 47 problems was identified and rectified

Improve the relevant qualifications

Promote the re-certification of the *Certificate of Registration of Hazardous Chemicals*, and sort out and map the production and operation of oxygen, nitrogen, argon, hydrogen, gas, sulfuric acid and other hazardous chemicals

Daily testing and inspection

Carry out the responsible person dedicated management, regular site safety inspection of major hazards and record notification



Employee care

Baosteel takes the employees' desire for a better life as its goal, pays attention to their physical and mental health, and is committed to providing them with a full range of practical protection and creating a corporate atmosphere full of love. The company has formulated the *Management System for Helping and Sending Warmth to the Poor* and *Management Measures for Using One-day Donation*, continuously optimized and promoted the employee health care plan, strengthened the efforts to help employees in difficulty, and actively carried out employee care activities such as "dormitory improvement", "birthday cake for employees lived in the factory", "car group purchase discount", "new employee group day", "online singing contest", and "online video collection of fitness exercises" to care for all employees in an all-round and multi-channel way, thus enhancing the happiness of employees, and promoting the construction of a harmonious culture inside and outside the enterprise.

Safeguard Employee Housing and Adjust Single Accommodation Allowance

The number of new employees in Baosteel is increasing, and in terms of the higher requirements of the young employees on the quality of living, the Company and the single accommodation operation department have jointly negotiated to upgrade the original double rooms into single rooms. In order to give priority to the single accommodation resources to cover the "immediate needs" of employees, the Company has set three levels of fees according to the number of years of employment. By doing this, it has further improved the living experience of young employees while effectively solving their housing difficulties.

Upgraded Single-occupancy Rooms for Employees

In 2022, the Company continued to strengthen its emergency response capability and logistical support capability, always mindful of its employees, and provided service support with the fastest pace and highest efficiency to guard the safety and health of its employees.

Baosteel Actively Fought against Epidemic and Guarded Employees' Safety

In 2022, in order to ensure the health of employees and to do a good job in caring for and supporting the prevention of epidemics for the youth lived in the factory and the single-stay youth, Baosteel, as a solid support, carried out a series of initiatives to help the employees.

Material guarantee: the Youth League Committee of Baosteel conducts research on the material needs of young employees lived in factories and single-stay young employees. For this, it coordinates multiple resources to provide the necessary channels to purchase living materials for young employees' families with material shortage and family difficulties, and send necessary living materials and hygiene products to single-stay young employees.

Life Supplies Donation Site

Psychological counseling: In order to relieve the psychological pressure of employees in time, Baosteel launched a "one-to-one" pairing activity between regional party members and employees to provide psychological guidance and care. In addition, we actively use the integration of the dissemination of various public welfare resources information, such as EAP warm-hearted action "Warm-hearted Cloud Classroom", "Family Education" Public Welfare Live Class, Baowu intelligent trade union psychological service channel "Epidemic Prevention and Control Care Station", "Cloud Good Dream to Win Gifts" theme online activities, etc., to provide employees with epidemic psychological counseling, home office mentality adjustment and other types of thematic consultation, cloud guardianship, warm-hearted energy.

06 Sharing

Join Hands with Industry Partners

- Supplier management
- Supply chain ESG management
- Strategic cooperation
- Co-building the industry

Baosteel, in the spirit of win-win cooperation and value creation, is committed to building a high-quality steel ecosystem together. We optimize supplier management, improve the safety and green level of the supply chain, and at the same time strengthen the organic linkage with various industry partners in the ecosphere to form a good atmosphere of joint contribution, win-win results and shared benefits.

Supplier management

The high-quality products and flourishing development of Baosteel cannot be achieved without a stable and orderly supply chain management. We attach great importance to business cooperation with suppliers, constantly optimize the supplier management system, accelerate the construction and management of intelligent supply chain, implement stable supply chain, and work together with each supplier partner.

Supplier management system

The suppliers of Baosteel are mainly divided into raw material suppliers and equipment and material suppliers. We carry out the admission, audit, evaluation and grading management of raw material suppliers in accordance with the *Management Measures for Raw Material Suppliers*, *Management Measures for Certification of Equipment and Material Suppliers*, *Management Measures for Supplier Site Audit* and *Evaluation Standards for Raw Material Suppliers* formulated internally, and entrust Ouyeel Industrial Products, a subsidiary of Baowu Group, to carry out the management of equipment and material suppliers in accordance with the *Audit Standards for Goods Suppliers* and *Performance Evaluation Standards for Goods Suppliers*.

Supplier Entry

- Strict screening of new suppliers based on customer needs and professional management and qualification requirements for quality, safety, environmental protection, labor management, etc. (e.g. ISO 14001, ISO 9001, etc.);
- For different types of suppliers (production, trade, logistics services, etc.) to implement classification management, requiring specific licensing documents.

Supplier Review

- Fill out the "Supplier Qualification Audit Form" for new suppliers, and submit it to the supervisor and the procurement center for review before it takes effect;
- Conduct regular on-site quality audits by establishing an annual audit plan for suppliers with a stable relationship with us;
- For the unqualified items in the audit, guide the supplier to take corrective measures, and follow up the verification of the corrective effect;
- We plan to invite third parties to conduct supplier audits in the future.

Supplier Assessment

- Assessment criteria include quantitative performance, purchaser evaluation and user unit evaluation;
- According to the comprehensive evaluation system (supplier performance, physical quality, price level, contract performance, on-site service, objection handling, user opinions, etc.), the Company offers a comprehensive annual score to suppliers.

Suppliers Classification

- Supplier of raw materials: Classify suppliers into five levels: A, B, C, D and E. Suppliers below level D are unqualified and will be considered for suspension of cooperation;
- Material and equipment suppliers: Based on the principle of "industry leading and excellent performance", suppliers are classified into 7 levels, and those with a total annual assessment score greater than 85 can be promoted.

Supplier Management Measures

During the reporting period, we took relevant optimization measures in the procurement of raw materials, and equipment and materials respectively, to enhance procurement specifications and improve the supply layout. The Company had a total of 3,084 suppliers of raw materials and equipment and materials, of which approximately 99% were from domestic suppliers.

Raw materials procurement:

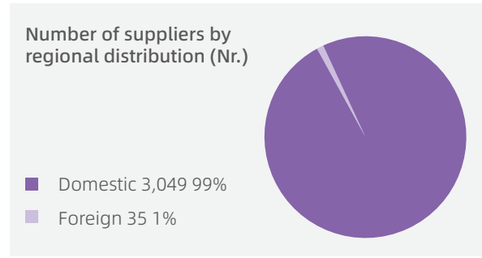
- We make more efforts to promote the action plan of "six changes", conduct "tender as far as possible" as the entry point, change from the mode of public inquiry and price comparison of raw materials to the mode of public social bidding, while insisting on quality control without relaxation, and introduce new coal types and new suppliers at the right time.
- Implement a number of new requirements and initiatives to improve quality and strengthen suppliers' ability to maintain supply
- Inspection of suppliers at the source of production quality, supplemented by quality control means such as sampling, unannounced inspection and second-party audit, to carry out quality control in advance and strengthen the level of quality control of secondary raw materials

Equipment and materials procurement:

- Focus on improving procurement quality and supplier assurance capabilities
- Carry out on-site review according to the supplier two-party audit work plan and quality objection verification work
- Conduct a seminar on quality management of steelmaking auxiliary materials to improve the quality management of suppliers

Procurement Management and Optimization Initiatives[11]

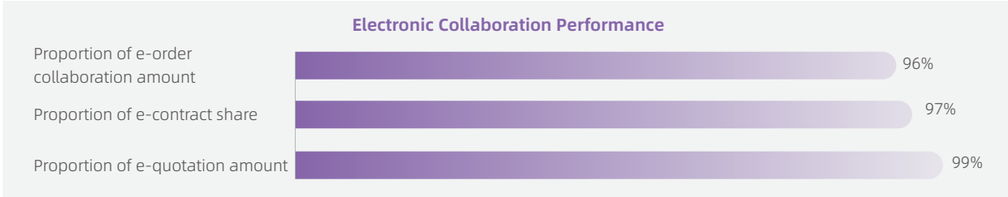
Based on the above management method, there were 3,084 suppliers of raw materials and equipment and materials to the Company during the reporting period. The distribution of suppliers by regions is as follows:



Intelligent procurement

Baosteel continues to promote intelligent solutions for procurement. The Company has organized the construction of information systems and big data applications with the support of 19 key big data construction projects, and completed the construction of raw material procurement logistics management system (PLMS) and procurement big data application system. The optimized PLMS system covers the four bases of Baosteel, coordinates the five centers of resource balancing center, contract center, procurement and distribution center, settlement center and cost center, and connects the overseas subsidiary Bao-trans Enterprises Limited to achieve full coverage of raw material procurement business by a single system for the first time. By doing so, it enhances the digitalization and intelligence of the procurement system, helps to support the platform operation of the enterprise and provides more efficient and comprehensive services for procurement and production and manufacturing business.

During the reporting period, the level of electronic collaboration between our procurement of materials and spare parts and suppliers further improved, with the number of orders reaching 335,719, an increase of over 200% compared to 2021. And the actual performance of e-quotation, e-contract and e-order collaboration indicators are as follows:



Stable supply chain

With a high sense of mission, Baosteel has taken up the responsibility and role of a central enterprise, taken multiple measures to ensure the stability and safety of the supply chain of the industry chain, and effectively helped upstream and downstream enterprises to resume production in collaboration.

[11] The six action plans for change of raw material procurement include optimizing the ratio of long-term agreement prices and spot procurement, realizing "tender as far as possible", promoting the ultimate inventory, strategic layout of raw material resources, "one company with multiple bases" to strengthen penetrating services, and building an efficient "horse racing" mechanism.

Anti-epidemic To Ensure Stable Supply

During the reporting period, the raw material procurement center of Baosteel strived for stable supply. The Company quickly adopted a new logistics solution, quickly mobilized other backup suppliers, and made a good adjustment plan between varieties to ensure that production was not affected.

The supply chain employees of Baosteel are also united to work for a common goal. The employees of each post insist on "inspection of the supply every day", checking the inventory data, the planned performance of on-site consumption, and the amount of resources in transit, keeping their posts, preserving production and supply, and jointly guarding the stable supply.

Supply chain ESG management

Baosteel attaches great importance to the collaborative development with suppliers. We strengthen the procurement management of raw materials and equipment and materials, and create a responsible supply chain through sunshine procurement, ESG risk assessment and conflict minerals management to improve the ESG management of the supply chain.

Purchasing Employees ESG Training

During the reporting period, we conducted training related to environmental and social responsibility awareness for our procurement staff, including key ESG topics such as business ethics, product quality, energy conservation and environmental protection, labor management, and health and safety.

The training covered 100% of procurement staff and effectively enhanced the awareness of procurement staff in environmental and social responsibility.

We continue to strengthen the supply chain ESG risk management mechanism, incorporate ESG focus in the supplier access and assessment process, and carry out supplier ESG risk assessment to create a sustainable supply chain with shared responsibility.

Access survey	For newly developed suppliers, we conduct more detailed background surveys in the supplier entry process, promote the requirements of environmental, energy, occupational health and safety, information security and ESG systems to suppliers, increase the investigation of suppliers' comprehensive system capabilities, and increase the qualification requirements for ESG-related aspects such as environment and energy
On-site audit	Such ESG requirements as on-site audits of risk management (including child and forced labor), business ethics, and green supply; for the conflict mineral dispute, the use of child labor and other serious violations listed as one-vote-down system, the Company will not cooperate with the supplier involved.
Agreement signing	Suppliers are required to sign a *Supplier Code of Conduct* that includes environmental, labor and human rights requirements, and the Company shall sign an Integrity Pledge with suppliers to bind them to operate with integrity, with a 100% supplier sign-up rate by 2022.
Questionnaire	For cooperated suppliers, compile ESG-related questionnaires and distribute them to raw material suppliers to fill in, so as to grasp suppliers' ESG performance

Supplier ESG Risk Assessment Process

During the reporting period, a total of 43.8% of suppliers passed the Company's social responsibility assessment in the form of questionnaires and on-site audits, and no major violations involving labor disputes and environmental violations were found.

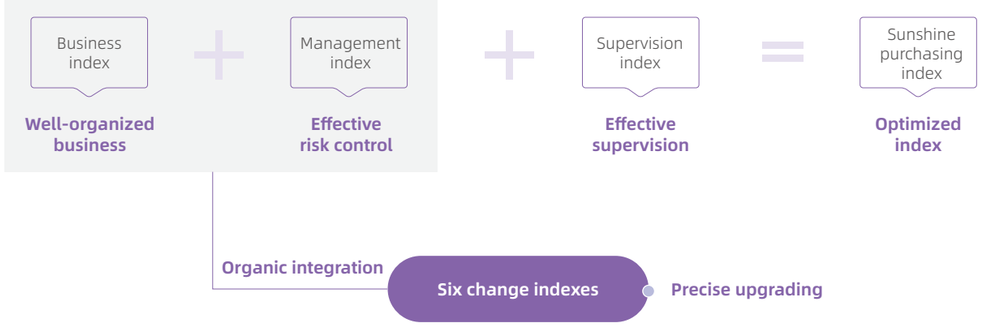
We also take various measures to promote suppliers' ESG management capabilities, adopt positive incentives in supplier assessment to encourage suppliers to carry out ESG certification, and work together with our supplier partners to build a sustainable value chain.

Supplier ESG Incentives

During the reporting period, the Equipment and Materials Procurement Center incorporated nine types of ESG indicators into the assessment system to encourage suppliers to carry out ESG work through the positive incentive of the assessment system, including supplier social responsibility system certification, RBA certification, product carbon footprint certification, zero carbon product certification, CSR/ESG report, and green supply performance.

Sunshine purcurement

Baosteel has launched the Sunshine Procurement Index, which is composed of business index, management index and supervision index, and assessed with 160 indicators covering the whole process of procurement business and risk control and supervision functions. In 2022, relevant quantitative indicators will be refined and integrated into the original Sunshine Procurement Index to form a scientific and open procurement assessment mechanism according to the specific initiatives and requirements of the six action plans for change. We make full use of the Sunshine Index to remove the risks and hidden danger reflected by the index timely and promote the improvement of risk prevention and control level and management quality and efficiency.



Sunshine Purchasing Index Optimization and Improvement

Integrity Training for Procurement Personnel

During the reporting period, the Raw Material Procurement Center organized several employee trainings in various forms to enhance their ability to improve the raw material procurement business process, system process and risk prevention. We focus on integrity risk prevention education, regularly organize employees to focus on offline learning, convey the Company's work requirements in terms of integrity risk, through the study of typical cases, and constantly strengthen employees' awareness and concepts in integrity, anti-corruption, and organize all employees to sign a commitment to integrity and self-discipline.

Conflict minerals management

Baosteel is committed to not sourcing raw materials from conflict minerals from conflict-affected and high-risk areas, such as products such as 3TG (metallic minerals such as tantalum, tin, tungsten and gold). The Company has issued a "Statement Related to Not Purchasing Minerals from Conflict Areas" on its official website, and has included information on the investigation of conflict minerals in the supplier access audit form, requiring suppliers to provide information on the certification of responsible minerals. We will not cooperate if the supplier has a conflict mineral dispute.

During the reporting period, we conducted due diligence on all suppliers through questionnaire research to ensure that the process was in compliance with their certificates of origin and the Conflict Minerals Reporting Template Minerals Initiative (RMI) developed by the Responsible Minerals Reporting Template (CMRT). The Company assesses the risk of suppliers based on the findings, and we will immediately stop cooperating with the suppliers with high risk of conflict minerals. During the reporting period, all of our suppliers have been listed on the audit compliance list published on the CFSI (Conflict-Free Minerals Sourcing Initiative) website in the United States.

Establishment of the Management System

- Formulate responsible mineral policies
- Relevant departments to form a responsible minerals work promotion group
- Requirements of the *Supplier Code of Conduct*

Risk identification and assessment

- Collect information through questionnaires
- Sorting out 3TG raw material supply
- Due diligence forms sent to suppliers involved in conflict minerals (refer to RMI's CMRT)
- Web search for suppliers
- Supply chain risk assessment, divided into three categories: high, medium and low

Risk Response Measures

- For high-risk suppliers, stop all business and conduct third-party audits to confirm risk
- For medium-risk suppliers, third-party audits to confirm risk
- For low-risk suppliers, make regular and good information tracking
- Conflict minerals clause added to supplier contracts

Independent Third Party

- Require independent third-party audits for suppliers rated as high-risk and medium-risk for the year
- The audit institution is appointed by Baoshan Iron & Steel
- Audit report submitted to Baoshan Iron & Steel

Management of Disclosure

- Disclosure of conflict minerals management in the annual *Sustainable Development Report* of Baoshan Iron & Steel

Conflict Minerals Management Process

Green supply chain

Baosteel looks forward to embracing the new low-carbon track with its partners and further promoting the green development of the supply chain. We give priority to green and low-carbon products in our procurement and establish a guidance mechanism to continuously improve the performance of our suppliers in terms of green environmental protection. The Company develops and supervises the implementation of supply chain carbon reduction plans in accordance with the published carbon reduction action plans, and works together to make substantial contributions to the fight against global climate change.

Vision of Green Supply Chain

Helping the steel bases of Baosteel achieve low-carbon and green transformation, for industrial procurement:

- 2023: strive to achieve carbon peaking of the supply chain
- 2025: achieve an 8% reduction in carbon intensity of supply chain industrial products compared to 2020
- 2035: a 30% reduction in carbon intensity of supply chain industrial products compared to 2020
- 2050: strive to achieve carbon neutrality of the supply chain

Based on the above objectives, the Equipment and Materials Procurement Center of Baosteel has taken the lead in promoting carbon accounting for industrial products in the domestic industrial procurement field, thus providing carbon data support to carry out carbon reduction in the supply chain. We build the Obel zero carbon ecological platform based on the concept of digital intelligence, which significantly improves the efficiency of carbon accounting for industrial products. During the reporting period, the Company first selected industrial products with relatively large purchasing weight, and gradually expanded the scope and categories of industrial products accounted for on the basis of pilot products. In this period, we have completed the actual carbon footprint accounting of 322 industrial products, accounting for about 40% of the categories.

Supplier empowerment

We carry out in-depth communication with our suppliers through various forms, and disseminate the latest concepts and requirements of the procurement execution of Baosteel to our suppliers, so as to continuously promote win-win cooperation and synergistic development of the upstream and downstream supply chain at the raw material end of the joint-stock company. Since the promotion of "carbon peaking and carbon neutrality" emission reduction work, we actively promote the green emission reduction requirements of Baosteel to suppliers, and make relevant suggestions on the possible environmental risks of suppliers in the access and implementation process.

Supplier ESG Training

In March 2022, the Raw Material Procurement Center and Equipment and Materials Procurement Center conducted ESG-related training for upstream suppliers, including business ethics, product quality, energy conservation and environmental protection, labor management, health and safety, etc. The training has received high attention from suppliers, with a total of 2,951 training attendees and a supplier participation coverage rate of over 60%, empowering suppliers to improve their ESG management.

2,951 people
have attended the training

Low Carbon Awareness Training for Suppliers

The Equipment and Materials Procurement Center of Baosteel attaches great importance to the low-carbon training activities for suppliers. Through online meetings and live publicity platforms, the Center has spread to more than 1,200 suppliers about the work requirements, important values and main processes of industrial products' carbon accounting for a total of eight times, which has enhanced the theoretical knowledge and value recognition of industrial product carbon accounting and low-carbon supply chain construction among suppliers. Some of the best suppliers now have the ability to supply zero carbon conveyor belt products to foreign mining customers.

Strategic cooperation

Baosteel actively explores strategic partnerships with other industry leaders, leverages its technological and innovative advantages, and carries out strategic cooperation in the fields of green development, R&D and innovation to contribute to low-carbon steel and iron, beautiful China and a harmonious world.

Baosteel and Midea Group signed a "strategic agreement" and inaugurated a "joint laboratory"

On August 4, 2022, Baosteel and Midea Group drafted and signed the "Baoshan Iron & Steel- Midea Strategic Cooperation Framework Agreement". At the same time, in order to create a low-carbon supply chain and promote green manufacturing, the two sides unveiled the official establishment of "Baoshan Iron & Steel - Midea Joint Laboratory of Steel for Home Appliances".

In 2022, the cooperation volume between Baosteel and the Media Group exceeded "one million tons" for two consecutive years, with a cumulative supply of about 5 million tons. Baosteel will be committed to providing future-oriented low-carbon solutions for the Media Group, and will continue to deepen the construction of the "megaton platform" through value-based cooperation. Based on the existing cooperation, Baosteel will strengthen the communication and learning with Midea Group in terms of corporate governance, diversified development, global operation and green manufacturing. In addition, with the help of the platform of "Joint Laboratory for Home Appliances", and facing the new market norm, new demands and new changes, they promote the development and application of new technologies, new materials and new processes, jointly create green and low-carbon material solutions, and contribute to the realization of "carbon peaking and carbon neutrality".

Baosteel and NIO signed a strategic cooperation agreement

In January 2022, Baosteel and NIO held a strategic cooperation signing ceremony at NIO in Jiading, Shanghai, marking the beginning of a new journey of strategic cooperation between the two companies. The two companies look forward to working together in product development, supply chain construction, technological innovation, new material application, and collaborative promotion of "carbon peaking and carbon neutrality" work to strengthen "green low-carbon" cooperation, share the "carbon peaking and carbon neutrality" mission with China's strength.

Co-building the industry

Baosteel actively participates in industry exchanges and sharing, and promotes the high-quality development of the steel industry through cooperation between industry, academia and research and the development of industry standards. By the end of the reporting period we had joined 95 social organizations such as the World Steel Association, the China Iron and Steel Association, and the Global Alliance for Low Carbon Metallurgy Innovation, continuously expanding the depth and breadth of industry participation and communication.

Formulation of industry standard

Baosteel is deeply involved in domestic and international standardization in key areas, and focuses on strategic directions and actively participates in domestic and international standardization work in key areas in depth for leading industrial development. At the same time, Baosteel always leads the development of excellent products with high-quality enterprise standards and pursues excellence, which is in sync with the market, with the reform and with the technological progress of Baosteel. From 2010 to 2022, we will lead the completion of 8 international standards, 136 national standards, 119 industry standards and many group standards.

International Standard

Led the drafting of two international standards and officially released, namely (ISO 4943:2022 *Determination of Steel, Iron and Copper Content by Flame Atomic Absorption Method* and ISO 24417:2022 *Surface Chemical Analysis - Analysis of Metal Nano Films on Fe-based Surfaces by Glow-discharge Optical Emission Spectrometry*.

National Standard

Organized the drafting of 19 national standards and released, including GB/T 20887.2~GB/T 20887.5 *Continuously Hot Rolled High Strength for Automobile*, GB/T 20564.4~GB/T 20564.7 *Cold Rolled High Strength Steel Sheet and Strip*, and GB/T 28905 *Low Yield Strength Steel Plates for Construction*.

2022 Industry Standards Organized or Participated in Drafting

The enterprise standards of Baosteel were selected as the enterprise standard forerunner

The system of enterprise standard forerunner is to encourage enterprises to develop better than national and industry standards. The enterprise standard "leader" refers to the core indicators of product or service standards in the leading level of enterprises.

In 2022, the two standards Q/BQB 485-2021 *Cold-rolled Oriented Electrical Steel Strip in the Full-processed State* and Q/BQB 486-2021 *Cold-rolled Grain-oriented Electrical Steel Strip Specialized for Uhv Transformers (Including Dc Converter Type)* led by Baosteel were both selected as the first batch of enterprise standard forerunners in 2022. Among the five enterprise standards in the field of steel, the silicon steel of Baosteel has two exclusive seats.

The selected criteria not only represent the excellent strength of Baosteel, but also represent the benchmark of the whole industry. Being selected as the enterprise standard forerunner also means becoming the leader in promoting other enterprises to the standard, and the promoter of the overall quality level of the industry. As the "leader", Baosteel's silicon steel will lead the national silicon steel industry to flourish, provide a strong boost to the high-quality development of China's steel industry, and make more and greater contributions to the strategy of strengthening the steel nation.


证书编号：ESF2022-000C313009003302

企业标准“领跑者”证书

ENTERPRISE STANDARD FORERUNNER

宝山钢铁股份有限公司：

贵公司企业标准 Q/BQB 486-2021《特高压（含直流换流型）变压器用冷轧取向电工钢带》经评估荣获 2022 年企业标准“领跑者”。

评估机构：冶金工业信息标准研究院

发证日期：2022 年 08 月 16 日

领跑者


证书编号：ESF2022-000C313009003301

企业标准“领跑者”证书

ENTERPRISE STANDARD FORERUNNER

宝山钢铁股份有限公司：

贵公司企业标准 Q/BQB 485-2021《全工艺冷轧取向电工钢带》经评估荣获 2022 年企业标准“领跑者”。

评估机构：冶金工业信息标准研究院

发证日期：2022 年 08 月 16 日

领跑者

Industry-university-research institute cooperation

The Company makes full use of the discipline, intelligence and other resource advantages of domestic and foreign colleges and universities, focuses on cooperation fields and key directions, relies on industry-university-research cooperation to realize the close combination of university knowledge diffusion and the Company's technological innovation needs, acquires cutting-edge knowledge and realizes technology leadership. We established the "Joint Research Center for Future Steel" with Shanghai Jiao Tong University and promoted 18 cooperative projects; The Joint Research Institute for Advanced Metal Materials was established with University of Science and Technology Beijing to carry out exchanges and planning in the fields of metal materials, process technology, near-final manufacturing, green manufacturing, intelligent manufacturing, etc. A total of 23 cooperative projects were promoted.

Global Low-Carbon Metallurgy Innovation Forum 2022 & The 8th Baosteel Biennial Academic Conference

In November 2022, the Global Low-Carbon Metallurgy Innovation Forum 2022 & The 8th Baosteel Biennial Academic Conference was held in Shanghai. With the theme of "reshaping the key position of the steel industry in the process of human sustainable development", this year's conference focused on the transformation of low carbon metallurgical processes in the steel industry, the efficient use of clean energy and other hot issues in green development. This main session and sub sessions of the conference covered topics including green manufacturing, green products, green industry and smart manufacturing. A number of well-known experts from the industry and academia gathered together to focus on the changes of the times, share technological innovations, explore practices around hot issues such as industrial restructuring and transformation, and discuss the development of the steel industry for the future.

Participate in the development of methodologies, tools and guidelines for setting scientific carbon targets SBTi

In 2022, Baosteel is involved as a member of the SBTi Technical Expert Group in the development of science-based carbon target setting methodologies, tools and guidelines for steel companies and other stakeholders.

07 Society

Assume the Responsibility of People's Livelihood

- Farmer-helping and agriculture-promoting
- Education as foundation
- Guarding with one heart
- City inclusion

Based on the people-oriented approach, Baosteel creates value for various stakeholders while giving back to the society with sincerity, and actively participates in various charitable donations and public welfare actions. We consolidate and expand the results of poverty eradication, focus on education and support, create a beautiful and high-quality community, take responsibility for people's livelihood development, and strive to create a harmonious society and achieve common prosperity. In the period, the total social donation of Baosteel amounted to RMB 82.3 million.

Farmer-helping and agriculture-promoting

Baosteel continues to promote the organic connection with the rural revitalization strategy, promote the implementation of the work of rural revitalization in four counties in Yunnan, and continue to maintain the intensity of work and help intensity. In addition, combined with the actual needs of the targeted counties, we make efforts in financial donations, project construction, party organization joint construction, consumption help and other aspects.

During the reporting period, Baosteel donated a total of RMB 70.7 million in rural revitalization and helped 46 projects. At the same time, we continued to carry out consumer assistance, actively purchasing local agricultural and sideline products totaling RMB 12.75 million in the Spring Festival, Dragon Boat Festival and high temperature season. By doing so, we boosted the income of enterprises and people in the poverty-stricken areas.

Ecological Tea Garden Industry Support Project in Gantang Village, Ning'er County, Pu'er City, Yunnan

Since May 2021, Baosteel has coordinated with Ning'er County Party Committee, Government and Rural Revitalization Bureau to help introduce Shanghai Foresight Foundation to contribute RMB 300,000 to help the tea industry in Gantang Village, through phased funding to Gantang Village Cooperative to transform 100mu of ecological tea garden to improve the economic income of the village collective and tea farmers.

Since the introduction of Baosteel's support funds to upgrade the tea plantation, the cooperative in Gantang Village has purchased 80 tons of fresh leaves from villagers, driving more than 300 workers, achieving sales of more than RMB 1.3 million and an increase of RMB 60,000 in the village collective economy. The implementation of the ecological tea garden construction project has effectively revitalized the village's idle resources, further broadened the villagers' avenues for income generation, and laid a good foundation for rural revitalization while developing and expanding the village collective economy.

A total of fresh leaves from the villagers was purchased by the cooperative in Gantang village

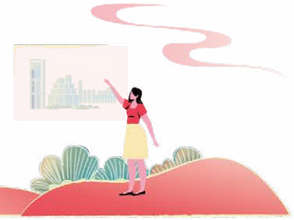
80 tons

New jobs

Over **300** people

Education as foundation

Baosteel strives to respect teachers and support the development of education. Baosteel Education Foundation was approved by the Ministry of Civil Affairs in May 2005. With the purpose of "rewarding excellent talents, advocating the respect of teachers and emphasis of education, driving the cooperations between industry and universities, supporting the development of education", Baosteel has established the "Baosteel Education Award" in some universities nationwide, supported the "National Model of Teaching and Education" and the "Baowu Cup" national outstanding young and middle-aged teachers in primary and secondary schools. By the end of the reporting period, the cumulative investment exceeded RMB 200 million, and over 20,000 students and teachers have been rewarded for their excellence over the past 30 years.



Sponsorship Program for Four Counties in Yunnan

Baosteel continues to carry out love and assistance to schools, fulfill its social responsibility and help revitalize the countryside. With the support of the party organizations at all levels, 80 employees and 59 groups from the headquarters of Baosteel and Baoshan base were paired with 95 students from poor families in Ning'er County, Yunnan, to offer their sincere love for them to complete their studies successfully. Cumulative donations raised by Baosteel was RMB0.255 million Meanwhile, the Youth League Committee of Baosteel made donations to Jiangcheng, Zhenyuan and Ning'er in Yunnan Province, with total funds of RMB 199,800, all of which were used to help improve teaching conditions and support students from poor families.

Cumulative donations raised by Baosteel

RMB **255,000**

Students helped

95 people

Cumulative funds donated by Baosteel to help students

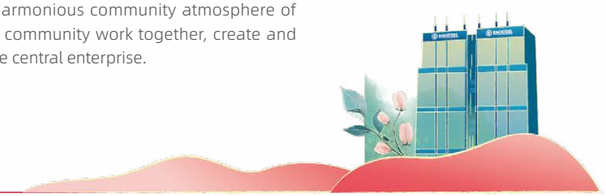
RMB **199,800**

"Xingzhiyue Reading Library" at Zhanjiang Base

In June 2022, Zhanjiang Base, Zhanjiang Economic & Technological Development Zone Education Bureau, Dongjian Street Office, Weilv Village Committee and the 13th Primary School of the Economic and Technological Development Zone inaugurated the "Xingzhiyue Reading Library" and jointly presented nearly 5,000 books to the school. The reading library was donated by Zhanjiang Iron & Steel with an area of about 200m^2. The name of the library "Xing Zhi" is derived from "the Knowledge and Action of Baosteel's personnel", which means that the culture of Baosteel is integrated into the campus, providing a better reading environment for students and letting the fragrance of books infuse children's hearts.

Guarding with one heart

As a responsible enterprise, Baosteel is concerned about the development of local communities. Through the mutual assistance and construction between the community and the enterprise, the Company creates a harmonious community atmosphere of neighborhood watch. The enterprise and the community work together, create and share together, showing the responsibility of the central enterprise.



Youth Volunteer Service

The volunteer organizations at all levels of Baosteel carry forward the volunteer spirit of dedication, love, mutual assistance and progress, and continue to carry out youth volunteer brand building work. The volunteer service teams of Baoshan base "Xiaoganghua", Qingshan base "Gangxiaoqing", Dongshan base "Zhenlan" and Meishan base "Xiaoyudian" actively carry out joint construction activities with community and universities, and serve community residents and promote social-enterprise integration in the form of youth support into the community. In 2022, more than 230 voluntary service activities such as Youth in the Community and Global Low Carbon Metallurgy Innovation Forum will be carried out, and the total number of young people participating in voluntary activities exceeded 2,400, with more than 13,900 service hours.

Stick Together and Strengthen Mutual Assistance

In March 2022, Baosteel coordinated the epidemic prevention and control and production and operation. In addition, the Party organizations at all levels carried out the requirements and deployment of the Shanghai Municipal Committee, and mobilized the Party members in Shanghai to report to their communities and participate in voluntary work at the first time, interpreting the responsibility of "the Pillars of a Great Power" with practical actions. During the period, the Party members of Baosteel in Shanghai fully supported community epidemic prevention, and they acted as temporary floor leaders to distribute supplies to households; They become "fire-fighting" team members working by night and day. As long as there is a need to go to where, Baosteel will give a hand.

City inclusion

In response to the *Guideline on Promoting the High-quality Development of the Iron and Steel Industry*, Baosteel takes the construction of "urban steel plant" with integrated production and ecological harmony as the core goal of sustainable development of the enterprise, and enriches the cultural connotation of Baosteel with urban culture. During the reporting period, Baosteel, according to the current situation of the city's resources and environment and the requirements of planning and development, carried out the transformation of industrial sites based on a people-oriented and heart-centered approach to create a corporate industrial cultural landscape that blends in with the city.

Construction of Meishan Patriotic Education Base

In 2022, the Meishan Base developed the series of postcards "Images of Meishan Steel", which adopts the form of graphic plus seal to make the audience deeply feel the patriotic feelings and the desire to serve the country. As a special content to promote party history learning and education, Meishan base actively connects with provincial and municipal cultural and tourism departments to provide one hundred "how steel is made" free field teaching for the society, which has gained good social reactions.

"Images of Meishan Steel" Postcard Picture of the Meishan Base

High-resolution Pictures of "How Steel is Made" Field Teaching Activities

Creating a "Living Card" of Wuhan Steel Culture

In December 2022, another historic moment was celebrated at Qingshan Base, when the Wugang Cultural Tourism Zone, which had been under construction for one year, officially opened for operation. There are 18 special attractions and five core scenic spots in the Wugang Cultural Tourism Zone. From west to east, there are four cultural circles: Golden Hearth, 913 Square, Red Steel Green Park and High Slope. And the steelmaking manipulation center and the first-line steelmaking site of the 1580 production line are also attractions for visitors. We take the creation of AAAA scenic spot as an opportunity to deeply promote landscape enhancement projects and cultural beautification projects, create a "living card" of Wuhan steel culture, and accelerate the process of cultural beautification.

After Wugang No.1 Blast Furnace was shut down, the national industrial heritage for employees and the general public to inherit the red gene and carry on the red spirit.

Number of special attractions owned by the Wugang Cultural Tourism Zone

18 spots

No.1 Furnace Picture of Wugang

Appendix 1 Climate -Related Risks and Opportunities

Climate change risk has become one of the most material risks among various sustainability risks and it is a general trend for the world to address climate change, accelerate the green transformation and move towards the goal of carbon neutrality. Therefore, Baosteel has conducted in-depth analysis, identification, and evaluation of the climate change risks and opportunities it faces and provide an overview of the Company's governance, strategy, risk management and other works related to climate change in accordance to the 2017 *TCFD Recommendations Report* published by the Task Force on Climate-related Financial Disclosures (TCFD) of Financial Stability Board (FSB). For more details, please refer to the Company's first *Climate Action Report* released during the Reporting Period (June 2022).

Governance

In order to effectively address the risks and opportunities of climate change, we have established a comprehensive corporate governance structure for climate change management. At the governance level, a Risk and ESG Committee is set under the Company's Board of Directors, with the chairman of the board serving as the committee chairman; at the management level, we set up a Carbon Neutrality Committee and a Carbon Neutrality Office, the former is chaired by the Chairman of Board and the Director Manager and all leaders in charge served as committee member, and the latter is headed by the Minister of Planning and Science and Technology. They jointly form the carbon neutrality work promotion system, and implement the policies, strategies and objectives related to climate change formulated by the Board of Directors and the Strategy, Risk and ESG Committee.

Strategy, Risk and ESG Committee

- Putting forth suggestions for the Company's long-term strategy and matreial investment decision,assisting board to evaluate the Company's performance and risk/opportunity management regarding ESG, reviewing climate-related major targets and investment plans, monitoring the delivery of performance targets.
- Reviewing the climate change issues at least once a year.

Carbon Neutrality Committee

- Reviewing the Company's overall targets and plan in carbon emission reduction and carbon neutrality; studying and determining all major events in advancing carbon neutrality.
- Reviewing and confirming Baosteel's key construction and R&D projects in carbon emission reduction and carbon neutrality.
- Reviewing and approving the annual plan in carbon emission reduction and carbon neutrality.
- Reviewing and studying the trend and key technologies in carbon emission reduction and carbon neutrality, and determining key research directions.
- Checking the progress of carbon neutrality and ensuring the delivery of tasks.
- Coordinating internal and external resources to facilitate carbon neutrality.
- Coordinating and reviewing other relevant events.

Carbon Neutrality Office

- Studying,interpreting and promoting state policies in carbon emission reduction and carbon neutrality.
- Strategic management on carbon emission reduction and carbon neutrality development.
- Managing innovation projects in emission reduction and carbon neutrality.
- Managing carbon assets.
- Managing the carbon neutrality management system.
- Managing carbon neutrality exchanges and cooperation.
- Felicitating working meetings quarterly.

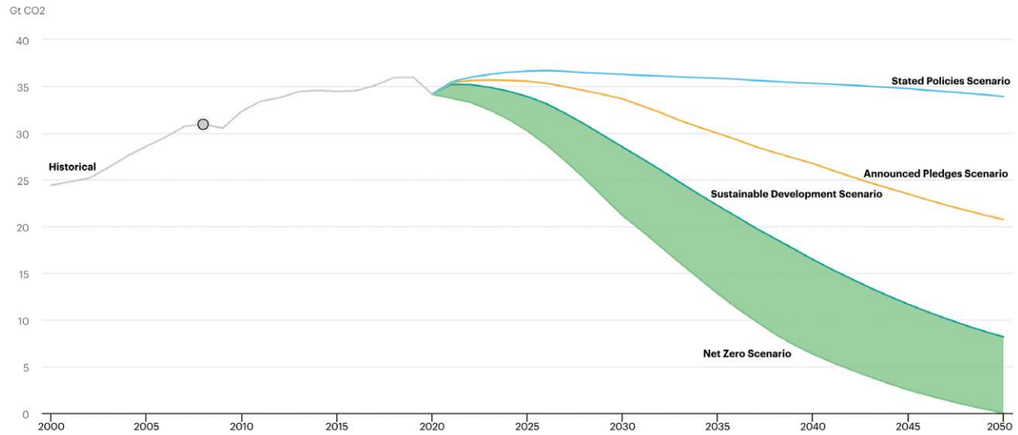
Governance Structure for Climate Change Risk Management

Strategy

Scenario analysis means recognizing and assessing the implications of various future states that may emerge under uncertainty. We use the model recommended by the TCFD and other analytical techniques to assess measurable climate change trend and relations. Combining the goals set in the UN Climate Change Conference in Paris (COP21) in adopting the Paris Agreement and the United Nations Framework Convention on Climate Change Conference of Parties (UNFCCC COP26), and recommendations in TCFD Scenario Analysis Guide and scenarios simulated by the International Energy Agency (IEA), Baosteel decided to use the following two long-term climate scenarios to analyze the climate change risks and opportunities that the Company may face in the future[12]:

The Announced Pledges Scenario (APS): Assuming all climate commitments made by countries, including nationally determined contributions and long-term net-zero emission targets, will be realized on time.

The Net-Zero Emissions by 2050 Scenario (NZE): Achieving CO_2 equivalent weight net zero emission by 2050. This target dose not rely on cutting emission in non-energy sectors.



Carbon emission trend in the two scenarios[13]

Combining our own business and industry situation, on the basis of public data, including assessments and reports from the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) on climate emission pathways, we analyze the risks and opportunities Baosteel may face under different scenario assumptions, compare the possible financial losses/increases caused by various risks/opportunities through quantitative analysis and determine the degree of impact of risks/opportunities. The analysis mainly considers two types of transition risk factors: economic and policy, as well as physical risk factors related to production and operation.

[12]Main references in scenario analysis:

i the Intergovernmental Panel on Climate Change (IPCC), Assessment Report 2022 (AR6) (2022） AR6 Climate Change 2022: Impacts, Adaptation and Vulnerability – IPCC

ii The United Nations Environmental Programme, Emission Gap Report, Emissions Gap Report 2021 (unep.org)

iii "Study on the Pathway of Implementing National Autonomous Contribution in China", Chai Qimin, National Center for Strategic Research and International Cooperation on Climate Change, DOI:10.19511/j.cnki.jee.2019.02.008(C)

iv TCFD, The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities Technical Supplement, TCFD -The-Use-of-Scenario-Analysis-in-Disclosure-of-Climate-Related-Risks-and-Opportunities-Simplified-Chinese-Translation.pdf (bbhub.io)

[13] IEA, CO_2 emissions in the WEO-2021 scenarios, 2000-2050, IEA, Paris Understanding WEO Scenarios - World Energy Model – Analysis - IEA

Risk		Risk Parameter	Implication	Mitigation Measure	Level of Impact
Transition Risk[14]	Policy and Legal	Carbon Pricing Mechanism	The Announced Pledges Scenario (APS): As a key regulated industry in Chinese carbon trading system, the steel industry faces compliance risk. In the short-term future (1-2 years), three of Baosteel's four main production bases are in Shanghai, Hubei and Guangdong pilot carbon markets. With carbon emissions costs continuing to rise, we forecast that the company's carbon compliance costs will reach RMB 120 million / year when carbon price reach RMB 45/ tonne CO_2e. Within the 14th Five-Year Plan period, China's national carbon market will be included in the steel industry. According to 95% of the free quota, RMB 60 / tonne CO_2e forecast, the company's compliance costs will reach RMB 270 million /year.	Baosteel has formed a carbon neutrality roadmap, and invested in energy-saving and emission reduction projects on a yearly basis. In addition, the Company also founded a carbon trading performing team to analyze fluctuations in carbon market and reduce performing cost.	Low
			The Net-Zero Emissions by 2050 Scenario (NZE): Our carbon performing cost will continue to increase due to the rising carbon price and tightened carbon quota. The global carbon price is expected to reach as high as RMB 120 per ton of CO_2e in 2030, and the company's compliance costs will amount to RMB 540 million/year.		Medium
		Carbon Tariff	The Announced Pledges Scenario (APS): The European Commission has announced the world's first "Carbon Border Tax" program, imposing tariffs on carbon commodity imports, including steel, cement, chemical fertilizers and aluminum. This will affect the future export of our products and we estimate to be charged € 40-80 million/year in carbon border taxes based on a tax of € 80/tonne of CO_2e.	Baosteel has teamed up with its peers to study the full life cycle of steel products. We secured excellent performance in products' carbon footprints by carrying out a series of energy-saving and emission reduction measures. Going forward, we will continue to promote low-carbon management in the Company and across the industrial chain. See Low carbon: a Leader of Green Iron and Steel-Green manufacturing	Low
			The Net-Zero Emissions by 2050 Scenario (NZE): The indicators of products' carbon footprints will be further elevated towards zero-emission as policies continues to tighten, which poses higher requirements to the carbon emission management of our production process and product value chain.		Medium
		Energy Structure	The Announced Pledges Scenario (APS): With China's successive renewable energy consumption targets, combined with the company's electrification plans (e.g. steel scrap smelting with renewable energy), the company will invest more resources in renewable energy procurement in the future.	To promote clean energy consumption, the Company has adopted a series of measures, including building on-site photovoltaic power plant and purchasing green electricity. With improvements in the trading mechanism of China's green electricity trading market and subscription of green electricity certificate, as well as the cost reduction of electricity generated by renewable resources, we are confident in completing the clean transition of energy structure. See Low carbon: a Leader of Green Iron and Steel-Green manufacturing	Low
			The Net-Zero Emissions by 2050 Scenario (NZE): The Company needs to devote more resources into energy structure transition as the development of renewable energy speeds up.		Medium

[14] Laws and regulations referred in assessing transition risks: The Ministry of Industry and Information Technology, Implementing Method of Capacity Replacement in the Steel Industry. The Ministry of Industry and Information Technology, Instructions on Promoting High Quality Development in the Steel Industry (Exposure Draft), National Development and Reform Commission, National Energy Administration Notice on Responsible Weight of Uptake of Power Generated from Renewable Sources 2021.

[15] 联合国环境规划署《2021 排放差距报告》

Risk		Risk Parameter	Implication	Mitigation Measure	Level of Impact
Transition Risk[14]	Technology	Low-emission technology transformation	The Announced Pledges Scenario (APS): Baosteeel needs to channel a large amount of capital into the R&D of low-carbon steelmaking technology, the uncertainty exists in R&D stages.	The low-carbon metallurgy technologies already developed by Baosteel have achieved certain results, but as these technologies are new, more resources are still needed to ensure the stability of the technology. However, as these technologies are new, more resources are needed to ensure the stability of commercialization. China Baowu has established ecosphere enterprises such as Ouye Chain Gold and Baowu Qingneng to establish a scrap recycling system and to develop and source clean energy.	Medium
			The Net-Zero Emissions by 2050 Scenario (NZE): It requires not only innovations in steel technology but also low-carbon transition of external environment, such as scrap recycling system and hydrogen storage technology, to realize carbon neutrality in the steel industry. However, there are still unforecastable risks in these systems and technologies.		Medium-High
		Changes in customers' behavior	The Announced Pledges Scenario (APS): The Company needs to research and develop low-carbon products to meet customers' needs as reducing carbon-intensity and improving reusability will be the core of the material market.	Baosteel is actively exploring low-carbon solutions and securing a leading position in the industry. For instance, we cooperate with both upstream and downstream automobile industrial chains, build a model of light-weight carbon-reduction project, and facilitate early realization of carbon neutrality across the industrial chain. See Low carbon: a Leader of Green Steel-Green product	Low - Medium
			The Net-Zero Emissions by 2050 Scenario (NZE): As low-carbon/zero-carbon products are now mainstream products in the market, the Company needs to improve decarbonization in operation and capability in industrial chain management. Otherwise, it may see decrease of orders and market share.		Medium
	Market	Rising raw material prices	The Announced Pledges Scenario (APS): The price of energy and water resources will rise with the impacts of climate change, affecting the procurement cost of raw materials.	Baosteel's parent company, China Baowu, has set up specialized subsidiaries such as Baowu Resources, Baowu Qingneng, Baowu Water and Ouye Chain Gold to focus on the development, trading and logistics business of mineral resources and clean energy required for its main business, innovate business models and build a world-class comprehensive service platform for mineral resources across the supply chain to reduce the impact of rising raw material costs on the company's product sales. See Low carbon: a Leader of Green Steel-Green product	Low
			The Net-Zero Emissions by 2050 Scenario (NZE): Raw material prices are increasingly sensitive to changes in climate policies. The increase in raw material prices will lead to risks such as increased costs.		
	Reputation	Concerns of relevant parties on climate measures	The Announced Pledges Scenario (APS): Relevant parties, such as investors and regulatory agencies are taking the Company's performance in climate response as a key performance indicator, which requires us to strengthen carbon management in response to their expectations.	Baosteel actively responses to the requirements and feedbacks related to climate change from relevant parties, and has disclosed measures and achievements in tackling climate change in *Sustainable Development Reports*. Meanwhile, in 2022 the Company is rated at level B by Carbon Disclosure Project (CDP), an international not-for-profit environmental organization. Going forward, we will continue to disclose our measures, targets and progress in climate change.	Low
			The Net-Zero Emissions by 2050 Scenario (NZE): Zero carbon target poses stricter requirements to the Company's climate measures. It requires the Company to stay close to requirements and feedbacks related to climate change from customers and relevant parties and adjust the Company's pathway towards carbon neutrality.		Low

The production and operation, quantity of production-related raw materials, and fluctuations in supply will be affected as the severity and frequency of extreme weather grow. According to historical data of our operating areas and the location of suppliers, we estimated that climate change will have limited impact on commodities over the next decade. Given that the Net-Zero Emissions by 2050 Scenario (NZE) has smaller physical risks than the Announced Pledges Scenario (APS), we will only take physical risks under APS into consideration. This scenario is broadly consistent with the GHG emissions generated by RCP4.5.

Risk		Risk Parameter	Implication	Mitigation Measures	Level of Impact
Physical Risk	Acute Risks	Increased intensity and frequency of extreme weather events (such as typhoon and floods)	The Baoshan Base and Dongshan Base of Baosteel are located in coastal areas and are hit by intense typhoon once or twice each year. During typhoon, part of production lines is shut down to ensure the safety of production equipment, resulting in a loss of some sales revenue every year. In addition, as our raw material suppliers are located around the world, extreme weather events in any areas may all affect our raw material supply.	In tackling potential climate change risks, Baosteel has established an emergency protocol to ensure safe production. We hold emergency protocol drills of all kinds, ensuring the improvement of our staff's response to disasters and emergencies. In addition, we also conduct social responsibility assessment on our suppliers, learn about their climate performance, and consult with them to establish a supply risk management mechanism, so as to minimize the impacts of physical risks on our production and operation.	Low
	Chronic Risks	Changes in temperature and rainfall	Slow changes in temperature and rainfall may cause difficulties in commuting and working for staff in some operating and raw material supplying areas, thereby increasing the Company's labor cost.		Low

Climate Change Opportunities

In the process of low-carbon transition, the manufacture mode of the steel industry and its downstream markets are undergoing profound changes. In the downstream market, the energy industry, automotive industry, and motor industry are the most prominent. To seize the new opportunities brought by climate change, Baosteel focuses on creating a new paradigm for future steel production, improving resource and energy utilization efficiency, investing in the construction of clean energy, and upgrading products and services.

Energy industry	Automotive Industry	Motor Industry
The rapid development of renewable energy such as wind, solar, and water, as well as the construction of Extreme-high voltage transmission and distribution systems, has led to a rapid growth in the market for high-performance thick plate, hot rolling, silicon steel, and other products required for wind, solar, water, nuclear power, and Extreme-high voltage transmission and distribution systems.	The automotive industry is rapidly converting from internal combustion engine time to new energy and hybrid vehicle time, with strong demand in the market for ultra-high intensity vehicle steel plates and high-performance non oriented silicon steel for drive motors.	Industrial motors accounts for approximately 80% of industrial electricity consumption, the uptake of high-efficiency electric equipment is a key area and an important measure to speed up energy saving and green development. Therefore, there is a strong demand for high-performance silicon steel products for motors.

Opportunity		Implication	Measure	Level of Impact
Resource Efficiency	Energy efficiency	China enforces control on the total energy consumption and energy intensity in the steel industry, an energy-intensive industry. Enterprises applying advanced energy-saving technologies can not only meet the requirements of energy consumption set by supervisory agencies, but also reduce the cost of production in crude steel, earning long-term profits. Companies are expected to save RMB 300 to 400 million of production cost each year.	Baosteel has established a comprehensive Best Available Commercial Technology (BACT) library applied to the whole process of industry. Each Baosteel Base comes up with plans and suggestions on energy-saving and emission reduction according to the technical library every year. The Company analyses, assesses and reviews relevant energy-saving and emission reduction programs. The energy saved from investing in energy-saving and emission reduction programs is equivalent to 200 thousand tons of standard coal equivalent (tce) per year. See Low carbon: a Leader of Green Iron and Steel-Green manufacturing	Low-medium
Source of Energy	Source of low-emission energy	Over the recent years, investment in renewable resources has exceeded that in fossil fuels, and the costs of distributed energy, storage energy and hydrogen energy continue to reduce. The transition to low-carbon energies can lower both the energy cost and carbon performing cost of the enterprise, saving more than RMB 2 million of compliance cost on carbon emission.	Baosteel actively promotes energy transition and application, and has finished building the world's largest rooftop photovoltaic power generation project. Meanwhile, we also actively subscribe procurement service with energy firms to maintain growth in green electricity procurement. See Low carbon: a Leader of Green Iron and Steel-Green manufacturing	Low
Product and Service	Customers' need for green products	(1) Rapid growth of electric vehicles According to IEA's *Global EV Outlook 2022*, the growth rate of China's electric vehicles will exceed 100% recently , and the market demand for high-grade non-oriented silicon steel for high-performance motors will grow rapidly; (2) Development of clean energy In recent years, China's new installed capacity of renewable energy power generation will account for about 50% of the world's total, and the newly installed capacity of renewable energy will be about 140GW/year; (3) Energy efficiency improvement The transition of the whole society to carbon neutrality puts forward new requirements for energy efficiency. For example, the motor industry tends to purchase high-efficiency steel products. (4) The whole society is transitioning to carbon neutrality, and the automobile industry has put forward requirements for long-life, corrosion-resistant, high-strength, and low-carbon emissions for steel products.	Baosteel ranks first in the production of automobile sheets and grain-oriented silicon steel, and is one of the iron and steel enterprises with the most complete varieties of carbon steel in the world. In response to the transformation needs of a low-carbon society, green and low-carbon products will focus on the following four aspects. (1) In line with the rapid growth of electric vehicles, a production line of high-grade non-oriented silicon steel for driving motors of new energy vehicles is being built to further increase market share. (2) Steel for clean energy mining and transmission. In response to the construction needs of the national UHV power grid, new oriented silicon steel production lines for transformers, generators and motors; provide overall solutions for wind power materials (high-strength wind power thick plates for wind towers, Baosteel silicon steel BeCOREs® for wind turbines), thick plate, hot-rolled and silicon used in the "clean energy corridor" giant cascade hydropower station steel products. (3) Improvement of energy efficiency: As the core material of motor manufacturing, non-oriented silicon steel contributes to the efficient and energy-saving development of the industrial motor industry. (4) Improve the efficiency of material use: As the world's largest supplier of automotive sheets, build a green and low-carbon Baosteel new energy vehicle overall solution brand SMARTeX. A new zero-carbon automotive sheet production line based on a hydrogen-based shaft furnace is being built to supply green and low-carbon steel products. See Low carbon: a Leader of Green Steel-Green product	Medium

Risk Management

Baosteel established comprehensive process for climate change risk management, incorporating climate change risks into the company's overall risk management framework. In response to the identified climate change risks and opportunities mentioned above, we adopt forward-looking risk management and normalized risk monitoring methods The Carbon Neutrality Office, consisting of members from relevant departments, such as Planning and Technology Department, Central Research Institute, Energy & Ecofriendly Department, Marketing Center (Baosteel International), Manufacturing Management Department and Procurement Department, implements climate change risk management across the entire value chain of the Company.

Organization

Forming an inter-departmental project team based on business involved in key risks by each project.

Project Promotion

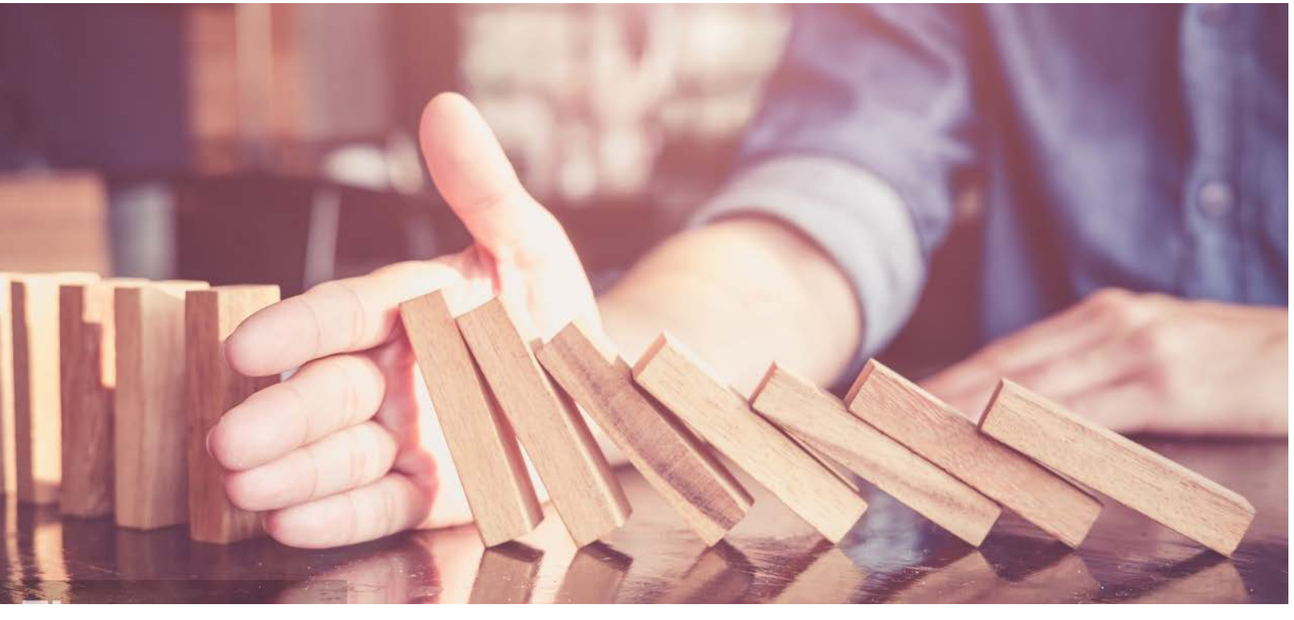
Organizing assessment on risk management strategies and solutions of projects with key risks based on their progresses.

Regular Monitoring

Analyzing and assessing risks based on the operation of relevant businesses, forming risk monitoring reports and providing meaningful input for policymakers.

Climate change risk management process

In order to effectively integrate climate change risk management into the company's overall risk management framework and the entire value chain, Baosteel has established a comprehensive risk management system covering the entire value chain. The company has built a risk analysis model by setting up pilot zones, which contributes to recognizing climate change risks and decision-making in operation. In addition, we also work for the synchronous establishment of risk management sharing service and the data model of risk management, forming a framework that provides risk management service to multiple bases, and shaping a Baosteel-featured intelligent information system of risk management.



Upstream side

Supply Chain LCA Database

Establish an LCA database of supplier product environmental performance, dynamically track environmental protection requirements of related industries, and conduct assessment and analysis on the impact of climate change in the supply chain

Realize the online management of carbon data, implement the carbon emission label of all items, comprehensively promote the carbon footprint assessment of the supply side, and carry out the carbon classification management of suppliers

Supply Chain Carbon Verification

Focus on building a low-carbon management system, improve the low-carbon system module in the procurement system, and conduct basic data surveys on carbon emissions from major suppliers

Continue to expand the influence of the platform and output services such as supply chain carbon emission information management, low-carbon solutions, industrial carbon management data and other services

Operating side

Carbon Market Management

The gap between carbon allowances and actual emission values will be assessed every year, and the company's carbon compliance cost budget for the year will be assessed

According to the budget results, jointly formulate corresponding goals and carbon reduction project proposals with various departments, and regularly evaluate the implementation effect and input

The Energy and Environment Department tracks carbon emission-related indicators and the progress of carbon reduction projects every month to ensure that cost risks are controllable

Extreme Weather Response

Keeps track of weather forecasts for extreme weather

Formulate corresponding emergency plans according to different levels of extreme weather.

Regularly organize corresponding plan drills according to the plan management requirements.

Each factory is equipped with sufficient flood and typhoon prevention materials

Policy and Legal Implications

Analyzing and evaluating the impact of carbon peaking and carbon reduction policies on the pursuit of the most competitive steel company's strategic goals

Carry out a SWOT analysis on the company regarding the impact, identify potential opportunities and risks, and provide theoretical support for the feasibility of low-carbon technology transformation

Low Carbon Technology Transition

Evaluate the company's investment and operating costs related to low-carbon technology research and development, and review low-carbon R&D investment and key fixed investment projects

Implement low-carbon projects according to the roadmap and plan, evaluate the implementation effect and phased completion results, and achieve regular review and summary of carbon reduction results

Downstream side

Market Demand

The marketing and procurement departments should promptly understand the changes in the demand structure for low-carbon products from users, and grasp the changing trends of downstream customers through multi-channel communication

Adjust production line and develop new products based on changes of user's preference and order structure.

Client Demands

The marketing department collects the carbon reduction requirements of the customer's supply chain.

The carbon neutrality office analyzes the carbon reduction requirements of the user, and negotiates and implements the carbon reduction plan with the customer in combination with the company's own carbon reduction planning time node.

Carry out the early intervention of users' new models / new models, implement green and low-carbon product design, and implement the carbon reduction design of the overall supply chain together with users

Appendix 2 Key Performance

"/": Baosteel has not disclosed historical data for some of the indicators, and the data has been disclosed starting in 2020 or 2021 through the improvement of the level of management of ESG indicators.

Economic performance	Unit	2020[16]	2021	2022
Total revenue	100 million RMB	2,822.81	3,653.42	3,690.58
Total costs	100 million RMB	2,697.44	3,371.63	3,590.79
Operating costs	100 million RMB	2,519.89	3,244.76[17]	3,462.93
Sales costs	100 million RMB	15.42	17.20	17.89
Administrative costs	100 million RMB	44.00	43.96	43.51
Research and development costs	100 million RMB	87.73	29.42[18]	31.68
Financial costs	100 million RMB	14.50	17.88	15.46
Impairment loss of assets	100 million RMB	1.94	-11.08	-9.53
Investment income	100 million RMB	31.41	39.75	51.12
Operating profit	100 million RMB	170.34	325.63	156.04
Total profit	100 million RMB	161.00	307.08	150.44
Net profit	100 million RMB	140.53	264.55	140.29
Social contribution value per share	RMB per share	1.75	2.44	1.84

GHG Emissions Performance	Unit	2020	2021	2022
Greenhouse gas emissions of Baosteel				
Greenhouse gas emissions (category 1 + category 2)	10,000 tons of carbon dioxide equivalent	8,993.7	9,080.5	9,658.9
Greenhouse gas emissions (Category 1)	10,000 tons of carbon dioxide equivalent	8,591.7	8,698.0	9,320.7
Greenhouse gas emissions (Category 2)	10,000 tons of carbon dioxide equivalent	402.0	382.4	338.2
Greenhouse gas emissions (category 3, category 4 and category 5)[19]	10,000 tons of carbon dioxide equivalent	3,435.8	3,705.7	3,409.2
Greenhouse gas emission intensity (category 1 + category 2)	Tons of carbon dioxide equivalent/ton crude steel	1.898	1.897	1.895
Greenhouse gas emissions of four bases				
Greenhouse gas emissions (category 1 + category 2)	10,000 tons of carbon dioxide equivalent	8,860.6	8,954.2	9,482.0
Greenhouse gas emissions (Category 1)	10,000 tons of carbon dioxide equivalent	8,533.1	8,645.6	9,195.6
Greenhouse gas emissions (Category 2)	10,000 tons of carbon dioxide equivalent	327.5	308.6	286.5
Greenhouse gas emission intensity (category 1 + category 2)	Tons of carbon dioxide equivalent/ton crude steel	1.870	1.870	1.861

[16] The financials for 2020 have been restated based on the audit report.

[17] The operating costs for 2021 are restated based on the annual report.

[18] The R&D expenses for 2021 are restated due to the change in statistical caliber.

[19] In 2023, the carbon emissions from transportation are revised, the transportation distance is accurately checked by map, and the transportation modes (water, rail, steam and sea) are also subdivided, so that the product transportation emissions are more accurate. Therefore, the data of 2020 and 2021 are revised simultaneously, and the third party also carries out verification.

Health and Safety Performance	Unit	2020	2021	2022
Total investment in safety	100 million RMB	6.4	7.4	4.5
Number of production safety accidents	/	/	11	7
Among them: Baosteel employees	/	/	3	3
Baosteel contractors	/	/	8	4
Occupational health checks coverage	%	100	100	100
Number of occupational morbidity	person	0	0	0
Frequency of injuries to employees in workplace accidents (including direct and collaborative employees)	Number of injuries/million hours worked	0.05	0.038	0.026
Among them: Baosteel employees	Number of injuries/million hours worked	/	0.040	0.035
Baosteel contractors	Number of injuries/million hours worked	/	0.035	0.023
Employees representing the Health and Safety Committee, as a percentage of all employees in all areas	%	100	100	100
Percentage of workplaces with OHS certification (ISO45001/OHSAS18001)	%	100	100	100
Deaths due to work-related injuries (Baosteel employees)	person	/	0	0
Deaths due to work-related injuries (Baosteel contractors)	person	/	2	2

Environmental Performance	Unit	2020	2021	2022
Environmental expensed inputs	100 million RMB	62.4	69.4	89.3
Environmental capitalized investment	100 million RMB	35.4	52.2	70.3
Number of environmental pollution incidents	/	3	3	2
Environmental penalties faced during the financial year	10,000 RMB	138.8	117.4	84.0
Proportion of sites with environmental risk assessment	%	100	100	100
Proportion of sites that have passed the energy management system ISO50001	%	100	100	100
Proportion of sites that have passed the environmental management system ISO14001	%	100	100	100
Iron ore consumption	10,000 tons	7,583	7,357	8,028
Other auxiliary materials	10,000 tons	1,479	1,444	1,612
Purchased steel scrap	10,000 tons	598	733	756
Total fuel energy	MWh	198,863,944	196,647,371	208,469,683
Energy intensity	MWh/ton crude steel	4.67	4.62	4.61
Power generation from photovoltaic projects	MWh	68,166	73,184	174,358
Purchased electricity from clean energy	MWh	1,150,000	1,370,000	576,311
Pollutant Emissions (2020 for the four bases, 2021 and 2022 for the four bases and Huangshi Coated Plate)				
Sulphide emissions	tons	11,268	9,158	7,912
Nitrogen oxide emissions	tons	32,339	25,332	21,102
Particulate emissions	tons	9,736	7,047	6,266
COD	tons	710	795	664

Environmental Performance	Unit	2020	2021	2022
Ammonia	tons	47	67	53
Waste Generation (four bases)				
Total waste generation	tons	29,869,089	30,379,258	31,501,501
Total hazardous waste generation	tons	445,984	506,748	622,746
Total harmless disposal of hazardous waste	tons	445,984	506,748	622,024
Total general waste generation	tons	29,423,105	29,872,510	30,878,755
Total general waste recycling	tons	29,313,107	29,834,315	30,855,509
Total general waste disposal	tons	109,998	38,195	23,246
Water Management				
Fresh water consumption	Million cubic meters	150	125	122
Fresh water consumption intensity	Cubic meters / ton crude steel	2.90	2.62	2.39
Wastewater discharge (2020 for the four bases, 2021 and 2022 for the four bases and Huangshi Coated Plate)	Million cubic meters	46	50	37
Operational impact of water-related events	10,000 RMB	0	0	0

Social Performance	Unit	2020	2021	2022
R&D expenses	100 million RMB	87.3	160.77[20]	172.5
R&D investment ratio	%	3.1	4.40	4.69
Patent Applications	/	1,271	1,292	1,355
New product sales rates	%	14	14	16
Unique new trial product ratio	%	32	32	32
Economic benefits of scientific research projects	100 million RMB	30.9	28	28
Number of suppliers	/	3,875	3,548	3,084
Proportion of suppliers in China	%	95	94	99
Proportion of overseas suppliers	%	5	6	1
Critical tier 1 suppliers	/	204	106	165
Critical non-tier 1 suppliers	/	2,003	1,855	1,330
Proportion of suppliers that have signed the Sustainable Sourcing Charter/ Supplier Code of Conduct	%	100	100	100
Proportion with CSR assessment (e.g. questionnaire)	%	/	38.1	43.8
Proportion that have undergone a CSR on-site audit	%	/	1.52	5.8
Number of orders from Ouyeel	/	94,411	102,726	335,719
Cumulative amount of Ouyeel orders	10,000 RMB	19,134	67,333	29,284
Number of categories purchased in Ouyeel (SKU)	/	13,000	288,819	215,406
Proportion of procurement of spare parts and suppliers' e-quotations	%	99	99	99
Proportion of procurement of spare parts and suppliers' e-quotations	%	96	97	97
Proportion of procurement of spare parts and suppliers' e-quotations	%	96	96	96

[20] R&D expenditure in 2021 is restated due to changes in statistical caliber.

Social Performance	Unit	2020	2021	2022
Proportion of green procurement of spare parts	%	25	26	28
Amount of local spare parts purchased	100 million RMB	114	148	220
Proportion of local spare parts purchased	%	36	47	58
Amount of spare parts procured from SMEs	100 million RMB	53	57	118
Proportion of spare parts procured from SMEs	%	17	18	31
Total number of employees	person	47,710	45,405	44,445
Employees under 30 and below	%	15	16	17
Employees aged 30-39	%	32	32	32
Employees aged 40-49	%	36	34	33
Employees aged 50 and over	%	17	18	18
Male employees	%	88	88	88
Female employees	%	12	12	12
Chinese employees	%	99.99	99.99	99.99
International employees	%	0.01	0.01	0.01
Ethnic Minorities	%	2.10	1.94	2.40
Disadvantaged groups	%	0.86	0.80	0.71
Proportion of managers who are female	%	/	7.0	7.5
Average number of employee training hours	hours	123	128	144
Proportion of employees trained in business ethics as a percentage of total employees	%	100	100	100
Proportion of employees trained in vocational and technical skills	%	100	100	100
Proportion of employees trained in anti-discrimination, anti-human rights violations	%	100	100	100
Percentage of employees trained in environment-related training	%	100	100	100
Proportion of staff resignations to total staff	%	1.2	1.7	0.5
Social insurance coverage rate	%	100	100	100
Proportion of people covered by collective agreements	%	100	100	100
Number of incidents of child labour, forced labour and human trafficking	/	0	0	0
Number of incidents related to diversity, discrimination and harassment	/	0	0	0
Customer Satisfaction	/	92.6	92.8	92.8
Sales of BETTER products	10,000 tons	858	1,000	931
Sales of BEST products	10,000 tons	269	387	416
Sales of BETTER+BEST green products	10,000 tons	1,127	1,387	1,348
Total amount of donations	10,000 RMB	7,335	7,856	8,230
Charitable Donations	10,000 RMB	6,664	7,335	7,678
Community donations and other amounts	10,000 RMB	671	521	552

Governance Performance	Unit	2020	2021	2022
Number of investor communications	/	7	7	6
Earnings Releases	/	33	59	47
Investment Strategy Sessions	/	46	41	41
Teleconferences	/	9 batches /25 people	18batches /77 people	5 batches /15 people
Other:		/	Roadshow communication: 36 times Answering questions from investors: 280 Investor relations questionnaires: 127 External communication: 1	Overseas investor roadshows: 14 Answering questions from investors: 307 Silicon Steel and Climate Action video conferences: 2
Proportion of operating sites that have conducted internal audits/ risk assessments for business ethics issues as a percentage of total operating sites	%	100	100	100
Proportion of sites with anti-corruption management system certification out of total sites	%	100	100	100
Number of reports generated by the whistleblowing process	/	/	24	29
Confirmed cases of corruption and bribery	/	0	0	0
Number of information security incidents recognised	/	/	0	0

Appendix 3 GRI Standard Index

Disclosure Item	Disclosure Title	Sections	Pages
Universal Standards			
GRI 1: Foundation 2021			
GRI 2: General Disclosures 2021			
The organization and its reporting practices			
2-1	Organizational details	About Baosteel–Company profile	Page 12
2-2	Entities included in the organization's sustainability reporting	About the Report	Page 6
2-3	Reporting period, frequency and contact point	About the Report	Page 6
2-4	Restatements of information	About the Report	Page 6
2-5	External assurance	Annex 6 Audit Statement	Page 138
Activities and workers			
2-6	Activities, value chain and other business relationships	Company profile 、Sharing: Join Hands with Industry Partners–Supply chain ESG management	Page 13, Page 102, Page 104
2-7	Employees	Endeavor: Build a Strong Enterprise with Talent–Employee overview	Page 84
Governance			
2-9	Governance structure and composition	Integrity: Fortify the Foundation for Governance–Enterprise governance	Page 20
2-10	Nomination and selection of the highest governance body	Integrity: Fortify the Foundation for Governance–Enterprise governance	Page 20
2-12	Role of the highest governance body in overseeing the	Integrity: Fortify the Foundation for Governance–Enterprise governance	Page 20
2-13	management of impacts	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
2-14	Delegation of responsibility for managing impacts	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
2-15	Role of the highest governance body in sustainability reporting	About the Report	Page 6
2-16	Conflicts of interest	Integrity: Fortify the Foundation for Governance–Investor relationship	Page 33
2-17	Communication of critical concerns	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
2-18	Collective knowledge of the highest governance body	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
2-19	Evaluation of the performance of the highest governance body	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
Strategy, policies and practices			
2-22	Statement on sustainable development strategy	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
2-23	Policy commitments	Endeavor: Build a Strong Enterprise with Talent–Employee overview	Page 84
2-24	Embedding policy commitments	Integrity: Fortify the Foundation for Governance–Business ethics、Building Integrity	Page 24, Page 25
2-25	Processes to remediate negative impacts	Integrity: Fortify the Foundation for Governance–Building Integrity	Page 25
2-26	Mechanisms for seeking advice and raising concerns	Integrity: Fortify the Foundation for Governance–Communication with stakeholders	Page 22
2-27	Compliance with laws and regulations	Annex 2 Main Data Indicators	Page 127
2-28	Membership associations	About Baosteel Low carbon: a Leader of Green Steel–Low-carbon ecosystem Sharing: Join Hands with Industry Partners–Co-building the industry	Page17, Page63, Page109
Stakeholder engagement			
2-29	Approach to stakeholder engagement	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
2-30	Collective bargaining agreements	Endeavor: Build a Strong Enterprise with Talent–Safeguarding of rights and interests	Page 85
GRI 3: Material Topics 2021			
3-1	Process to determine material topics	Integrity: Fortify the Foundation for Governance–ESG management	Page 21

Disclosure Item	Disclosure Title	Sections	Pages
3-2	List of material topics	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
3-3	Management of material topics	Integrity: Fortify the Foundation for Governance–ESG management	Page 21
Universal Standards			
GRI 201: Economic Performance 2016			
201-1	Direct economic value generated and distributed	See Details in Annual Report	
201-2	Financial implications and other risks and opportunities due to climate change	Annex 1 Identification of Climate Change Risks and Opportunities–Strategy 、Risk management	Page 118
201-4	Financial assistance received from government	See Details in Annual Report	
GRI 203: Indirect Economic Impact 2016			
203-2	Significant indirect economic impacts	Society: Assume the Responsibility of People's Livelihood	Page 112
GRI 204: Procurement Practices 2016			
204-1	Proportion of spending on local suppliers	Annex 2 Main Data Indicators	Page 129
GRI 205: Anti-corruption 2016			
205-1	Operations assessed for risks related to corruption	Integrity: Fortify the Foundation for Governance–Building Integrity	Page 25
205-2	Communication and training about anti-corruption policies and procedures	Integrity: Fortify the Foundation for Governance–Building Integrity	Page 25
205-3	Confirmed incidents of corruption and actions taken	Integrity: Fortify the Foundation for Governance–Building Integrity	Page 25
GRI 206: Anti-competitive Behavior 2016			
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Integrity: Fortify the Foundation for Governance–Business ethics	Page 25
GRI 207: Tax 2019			
207-1	Approach to tax	About Baosteel–Tax strategy	Page 16
207-2	Tax governance, control, and risk management	About Baosteel–Tax strategy	Page 16
207-3	Stakeholder engagement and management of concerns related to tax	About Baosteel–Tax strategy	Page 16
GRI 301: Materials 2016			
301-1	Materials used by weight or volume	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 71
301-2	Recycled input materials used	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 71
301-3	Reclaimed products and their packaging materials	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 71
GRI 302: Energy 2016			
302-1	Energy consumption within the organization	Annex 2 Main Data Indicators	Page 127
302-2	Energy consumption outside of the organization	Annex 2 Main Data Indicators	Page 127
302-3	Energy intensity	Low carbon: a Leader of Green Steel–Green manufacturing	Page 56
302-4	Reduction of energy consumption	Low carbon: a Leader of Green Steel–Green manufacturing	Page 56
302-5	Reductions in energy requirements of products and services	Low carbon: a Leader of Green Steel–Green product	Page 56
GRI 303: Water and Effluents 2018			
303-1	Interactions with water as a shared Resource	Environment: Build an Ecological Civilization–Water resource management	Page 76
303-2	Management of water discharge-related impacts	Environment: Build an Ecological Civilization–Water resource management	Page 76
303-3	Water withdrawal	Environment: Build an Ecological Civilization–Water resource management	Page 77
303-4	Water discharge	Environment: Build an Ecological Civilization–Water resource management	Page 77
303-5	Water consumption	Environment: Build an Ecological Civilization–Water resource management	Page 77

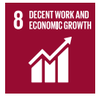
Disclosure Item	Disclosure Title	Sections	Pages
GRI 304: Biodiversity 2016			
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Environment: Build an Ecological Civilization–Biodiversity	Page 80
304-2	Significant impacts of activities, products and services on biodiversity	Environment: Build an Ecological Civilization–Biodiversity	Page 80
304-3	Habitats protected or restored	Environment: Build an Ecological Civilization–Biodiversity	Page 80
GRI 305: Emissions 2016			
305-1	Direct (Scope 1) GHG emissions	Low carbon: a Leader of Green Steel–Green manufacturing、Green product	Page 127
305-2	energy indirect/Scope 2 GHG emissions	Low carbon: a Leader of Green Steel–Green manufacturing、Green product	Page 127
305-3	Other indirect/Scope 3 GHG emissions	Low carbon: a Leader of Green Steel–Green manufacturing、Green product	Page 127
305-4	GHG emissions intensity	Low carbon: a Leader of Green Steel–Green manufacturing、Green product	Page 127
305-5	Reduction of GHG emissions	Low carbon: a Leader of Green Steel–Green manufacturing、Green product	Page 127
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Environment: Build an Ecological Civilization–Waste gas management	Page 74
GRI 306: Effluents and Waste 2020			
306-1	Waste generation and significant waste-related impacts	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 71
306-2	Actions taken to prevent waste generation	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 70
306-3	Composition of waste generated	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 70, Page 72
306-4	Recovery operations used to divert waste from disposal	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 70, Page 72
306-5	Disposal operations	Environment: Build an Ecological Civilization–Waste management 、Circular economy	Page 70, Page 72
GRI 308: Supplier Environmental Assessment 2016			
308-1	New suppliers that were screened using environmental criteria	Sharing: Join Hands with Industry Partners–Supply chain ESG management	Page 104
308-2	Negative environmental impacts in the supply chain and actions taken	Sharing: Join Hands with Industry Partners–Supply chain ESG management	Page 104
GRI 401: Employment 2016			
401-1	New employee hires and employee Turnover	Endeavor: Build a Strong Enterprise with Talent–Employee overview	Page 84
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Endeavor: Build a Strong Enterprise with Talent–Salary welfare	Page 87
401-3	Parental leave	Endeavor: Build a Strong Enterprise with Talent–Salary welfare	Page 87
GRI 403: Occupational Health and safety 2018			
403-1	Occupational health and safety management system	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 92
403-2	Hazard identification, risk assessment, and incident investigation	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 94
403-3	Guidance for Disclosure	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 95
403-4	Worker participation, consultation, and communication on occupational health and safety	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 95
403-5	Worker training on occupational health and safety	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 96
403-6	Promotion of worker health	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 96
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 95, Page 96
403-8	Workers covered by an occupational health and safety management system	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 92

Disclosure Item	Disclosure Title	Sections	Pages
403-9	Work-related injuries	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 92
403-10	Work-related ill health	Endeavor: Build a Strong Enterprise with Talent–Health and safety	Page 92
GRI 404: Training and Education 2016			
404-1	Average hours of training per year per employee	Endeavor: Build a Strong Enterprise with Talent–Talent development	Page 91
404-2	Programs for upgrading employee skills and transition assistance programs	Endeavor: Build a Strong Enterprise with Talent–Talent development	Page 90
404-3	Percentage of employees receiving regular performance and career development reviews	Endeavor: Build a Strong Enterprise with Talent–Talent development	Page 89
GRI 405: Diversity and Equal Opportunity 2016			
405-1	Diversity of governance bodies and employees	Endeavor: Build a Strong Enterprise with Talent–Safeguarding of rights and interests	Page 84
GRI 406: Non-discrimination 2016			
406-1	Incidents of discrimination and corrective actions taken	Endeavor: Build a Strong Enterprise with Talent–Safeguarding of rights and interests	Page 84
GRI 407: Freedom of Association and Collective Bargaining 2016			
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Endeavor: Build a Strong Enterprise with Talent–Safeguarding of rights and interests	Page 85
GRI 408: Child Labor 2016			
408-1	Operations and suppliers at significant risk for incidents of child labor	Endeavor: Build a Strong Enterprise with Talent–Safeguarding of rights and interests	Page 84
GRI 409: Forced or Compulsory Labor 2016			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Endeavor: Build a Strong Enterprise with Talent–Safeguarding of rights and interests	Page 84
GRI 413: Local Communities 2016			
413-1	Operations with local community engagement, impact assessments, and development programs	Society: Assume the Responsibility of People's Livelihood	Page 114
413-2	Operations with significant actual and potential negative impacts on local communities	Society: Assume the Responsibility of People's Livelihood	Page 114
GRI 414: Supplier Social Assessment 2016			
414-1	New suppliers that were screened using social criteria	Sharing: Join Hands with Industry Partners–Supply chain ESG management	Page 104
414-2	Negative social impacts in the supply chain and actions taken	Sharing: Join Hands with Industry Partners–Supply chain ESG management	Page 104
GRI 417: Marketing and Labeling 2016			
417-1	Requirements for product and service information and labeling	Innovation: Drive High-Quality Development–Quality assurance	Page 36
417-2	Incidents of non-compliance concerning product and service information and labeling	Innovation: Drive High-Quality Development–Customer service	Page 48
417-3	Incidents of non-compliance	Innovation: Drive High-Quality Development–Customer service	Page 48
GRI 418: Customer Privacy 2016			
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Integrity: Fortify the Foundation for Governance–Information security	Page 31

Baosteel's omitted GRI disclosures are explained as follows:

Omission GRI topics	Reason for omission	Explanation
2-8; 203-1; 207-4; 304-4; 410-1; 411-1;415-1; 416-1; 416-2	Not applicable	The Company's core business is less relevant and therefore is not disclosed in the Sustainability Report.
2-11; 2-20; 2-21	Not applicable	The Company has already disclosed relevant information in the Annual Report and will therefore not repeat the disclosure in the Sustainability Report.
202-1; 202-2; 405-2	Confidentiality constraints	This data is currently outside the scope of the Company's ESG data management. The Company will gradually expand the scope of the data in the future and consider disclosing this information when included.

Appendix 4 The Index of SDGs

United Nations Sustainable Development Goals (SDGs)	Introduction of Initiative	Chapter Index
	End poverty in all its forms everywhere.	Society: Assume the Responsibility of People's Livelihood–Farmer-helping and agriculture-promoting
	End hunger, achieve food security and improved nutrition and promote sustainable agriculture.	Endeavor: Build a Strong Enterprise with Talent–Salary welfare Endeavor: Build a Strong Enterprise with Talent–Employee care
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	Society: Assume the Responsibility of People's Livelihood–Education as foundation
	Achieve gender equality and empower all women and girls.	Endeavor: Build a Strong Enterprise with Talent–Employee overview
	Ensure availability and sustainable management of water and sanitation for all.	Environment: Build an Ecological Civilization–Water resource management
	Ensure access to affordable, reliable, sustainable and modern energy for all.	Low carbon: a Leader of Green Steel–Green product 、Low-carbon ecosystem
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	Endeavor: Build a Strong Enterprise with Talent–Employee overview Endeavor: Build a Strong Enterprise with Talent–Salary welfare Sharing: Join Hands with Industry Partners
	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	Innovation: Drive High-Quality Development–Intelligent manufacturing

United Nations Sustainable Development Goals（SDGs）	Introduction of Initiative	Chapter Index
10 REDUCED INEQUALITIES	Reduce inequality within and among countries.	Endeavor: Build a Strong Enterprise with Talent–Employee overview
11 SUSTAINABLE CITIES AND COMMUNITIES	Make cities and human settlements inclusive, safe resilient and sustainable.	Society: Assume the Responsibility of People's Livelihood–Guarding with one heart Society: Assume the Responsibility of People's Livelihood–City inclusion
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Ensure sustainable consumption and production patterns.	Innovation: Drive High-Quality Development–Quality assurance 、Intelligent manufacturing
13 CLIMATE ACTION	Take urgent action to combat climate change and its impacts.	Sharing: Join Hands with Industry Partners–Supply chain ESG management
14 LIFE BELOW WATER	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	Environment: Build an Ecological Civilization–Biodiversity
15 LIFE ON LAND	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Environment: Build an Ecological Civilization–Biodiversity
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	Integrity: Fortify the Foundation for Governance–Enterprise governance
17 PARTNERSHIPS FOR THE GOALS	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.	Sharing: Join Hands with Industry Partners–Strategic cooperation 、Co-building the industry

Appendix 5 The Index of Sustainability Accounting Standards Board(SASB)

Disclosure Issues/Items	Title of Disclosure Item	Chapter Index
Greenhouse Gas Emissions		
EM-IS-110a.1	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Low carbon: a Leader of Green Steel–Green manufacturing
EM-IS-110a.2	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Low carbon: a Leader of Green Steel–Green manufacturing
Air Emissions		
EM-IS-120a.1	Air emissions of the following pollutants: (1) CO, (2) NOx (excluding N_2O), (3) SOx, (4) particulate matter (PM_{10}), (5) manganese (MnO), (6) lead (Pb), (7) volatile organic compounds (VOCs), and (8) polycyclic aromatic hydrocarbons (PAHs)	Environment: Build an Ecological Civilization–Waste gas management
Energy Management		
EM-IS-130a.1	(1) Total energy consumed, (2) percentage grid electricity, (3) percentage renewable	Low carbon: a Leader of Green Steel–Green manufacturing
EM-IS-130a.2	(1) Total fuel consumed, (2) percentage coal, (3) percentage natural gas, (4) percentage renewable	Low carbon: a Leader of Green Steel–Green manufacturing
Water Management		
EM-IS-140a.1	(1) Total fresh water withdrawn, (2) percentage recycled, (3) percentage in regions with High or Extremely High Baseline Water Stress	Environment: Build an Ecological Civilization–Water resource management
Waste Management		
EM-IS-150a.1	Amount of waste generated, percentage hazardous, percentage recycled	Environment: Build an Ecological Civilization–Waste management
Workforce Health & Safety		
EM-IS-320a.1	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) full-time employees and (b) contract employees	Endeavor: Build a Strong Enterprise with Talent–Health and safety
Supply Chain Management		
EM-IS-430a.1	Discussion of the process for managing iron ore and/or coking coal sourcing risks arising from environmental and social issues	Sharing: Join Hands with Industry Partners–Supply chain ESG management

Appendix 6 INDEPENDENT ASSURANCE STATEMENT

ASSURANCE STATEMENT

SGS -CSTC'S REPORT ON SUSTAINABILITY REPORT IN THE BAOSHAN IRON & STEEL CO., LTD. FOR 2022

NATURE OF THE ASSURANCE/VERIFICATION
SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. (hereinafter referred to as SGS) was commissioned by Baoshan Iron & Steel Co., Ltd.. (Baosteel) to conduct an independent assurance of the 2022 Sustainability Report .

INTENDED USERS OF THIS ASSURANCE STATEMENT
This Assurance Statement is provided with the intention of informing all Baosteel's Stakeholders.

RESPONSIBILITIES
The information in the Report and its presentation are the responsibility of the directors or governing body. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all Baosteel's stakeholders.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE
The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognised assurance guidance and standards including the principles of reporting process contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) GRI 1: Foundation 2021 for report quality, GRI 2 General Disclosure 2021 for organisation's reporting practices and other organizational detail, GRI 3 2021 for organisation's process of determining material topics, its list of material topics and how to manages each topic, and the guidance on levels of assurance contained within the AA1000 series of standards.

The assurance of this report has been conducted according to the following Assurance Standards:
SGS ESG & SRA Assurance Protocols (based on GRI Principles and guidance in AA1000. Assurance has been conducted at a moderate level of scrutiny.

SCOPE OF ASSURANCE AND REPORTING CRITERIA
The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:
GRI Standards 2021(In Accordance with)
SASB （Sustainability Accounting Standards Board）

ASSURANCE METHODOLOGY
The assurance comprised a combination of pre-assurance research, interviews with relevant employees that located at No. 885 Fujin Road, Baoshan District, Shanghai, P. R. China; documentation and record. Including:
Collected relevant media information
Communicate with senior management to understand the sustainability activities
Through interviews with respresenatives of relevant dept to understand the management process

LIMITATIONS AND MITIGATION
Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process. The data for assurance of report information were all from the Baosteel and the assurance process only involved interviews with Baosteel' relevant departments and certain employees and consultation with relevant documents didn't involve external stakeholder.

STATEMENT OF INDEPENDENCE AND COMPETENCE
The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from Baosteel, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with CSR auditor, SAI Registered SA8000 auditor, CCAA Registered ISO 9001 auditor, ISO 14001 auditor, ISO 45001 auditor and ISO 14064 Verifier etc .

FINDINGS AND CONCLUSIONS
Based on the methods described and the inspections conducted, the information and data contained in Baosteel's 2022 are generally accurate and no systematic or material misstatements have been found. The report was made according to GRI standards and followed the relevant reporting principles.

ASSURANCE/VERIFICATION OPINION
Based on the above methodology and verification, the information and data contained in the Sustainability Report 2022 of Baosteel are confirmed to be accurate and reliable. Provides an unbiased and relevant presentation of sustainable development activities in the Baosteel 2022 Sustainability Report , which the validation team believes can be used by all Baosteel's stakeholders.

Principles

Sustainability Context:
Bapsteel's vision of " To be the most competitive steel enterprise of the world and to be the listed enterprise with the biggest investment value " and aims to achieve the historical mission of "being the demonstrator of high-quality development of steel industry and the leader of future steel" as its blueprint. Under this blueprint, Baosteel Group organically combines the interests of stakeholders and the overall social interests with its own interests. Since 2003, Baosteel has released annual sustainable development reports. The company regards the reports as a beneficial tool to shape the brand image of corporate responsibility, improve the level of social responsibility management and strengthen the communication among.

Accuracy:
Baosteel reporting process is objective and complete, which can disclose more information to stakeholders and reveal that the concept of social responsibility management is consistent with the expectations of stakeholders

Balance:
Baosteel actively discloses its own positive and negative performance based on the expectations of stakeholders, and gives stakeholders more objective performance of social responsibility performance.

Clarity:
Report was presented different ways with words, charts, graphics and pictures, also describe with actual cases as well to ensure the stakeholders understanding easily.

Comparability:
The Report disclosed relevant performance indicators of Baosteel in 2022, including: total revenue, total tax payment, R&D investment, carbon emission intensity, social donations and other key indicators for three consecutive years, so that stakeholders can intuitively compare and understand its sustainable development performance. with excellent performance in comparability.

Completeness:
The report included coverage of material aspects and boundaries, complete to reflect significant economic, environmental and social impacts, to enable stakeholders to assess the organization's performance in the reporting period.

Timeliness:
Baosteel discloses its sustainability performance timeliness. Stakeholders can obtain information to make a reasonable decision in a timely manner.

Verifiabilty:
The datas and informations can be traced and verified by internal collection, recording, compiling, analysis and disclosure to ensure the quality and materiality of information. In addition, an independent external organization also provides the reliability of the report.

Signed:

For and on behalf of SGS-CSTC

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

Apr. 20th, 2023
WWW.SGS.COM

Appendix 7 Greenhouse Gas Verification Statement

Statement of Conformity CN23/00002047

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in
1 Jan. 2022 to 31 Dec. 2022 of

Baoshan Iron & Steel Co., Ltd.
Baoshan Iron & Steel Co., Ltd. (Baoshan Base)
Wuhan Iron and Steel Co., Ltd. (Qingshan Base)
Baosteel Zhanjiang Steel Co., Ltd. (Dongshan Base)
Shanghai Meishan Iron & Steel Co., Ltd. (Meishan Base)

Business address: No. 885, Fujin Road, Baoshan District, Shanghai City, P.R. China
Organization boundary: Detail organization boundary information has been listed in Annex, for multi-site statement
has been verified in accordance with ISO 14064-3:2019 as meeting the requirements of

ISO 14064-1:2018

Direct Emissions [Category 1]
93,207,012.10 tonnes of CO_2e
Indirect Emissions from Imported Energy [Category 2]
3,381,945.97 tonnes of CO_2e
Indirect Emissions from Transportation [Category 3]
5,009,598.28 tonnes of CO_2e
Indirect Emissions from Products Used by An Organization [Category 4]
29,082,017.14 tonnes of CO_2e
Indirect Emissions Associated with The Use of Products from The Organization [Category 5]
0 tonnes of CO_2e
Indirect Emissions from Other Sources [Category 6]
[be determined as non-significant indirect emissions and not quantified]
Total Emissions Quantified
130,680,573.50 tonnes of CO_2e

Authorized by
David Xin
Sr. Director - Knowledge
DATE: 9 Mar. 2023
SGS-CSTC Standards Technical Services Co., Ltd.
16F Century YuHui Mansion, No. 73 Fucheng Road, Beijing, P.R. CHINA 100142
t +86 (0)10 58251188 www.sgsgroup.com.cn
Several statements have been issued for this scope, this is main statement

Page 1 of 4

Statement of Conformity CN22/00000467

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in
1 Jan. 2021 to 31 Dec. 2021 of

Baoshan Iron & Steel Co., Ltd.
Baoshan Iron & Steel Co., Ltd. (Baoshan Base)
Wuhan Iron and Steel Co., Ltd. (Qingshan Base)
Baosteel Zhanjiang Steel Co., Ltd. (Dongshan Base)
Shanghai Meishan Iron & Steel Co., Ltd. (Meishan Base)

Business address: No. 885, Fujin Road, Baoshan District, Shanghai City, P.R. China
Organization boundary: Detail organization boundary information has been listed in Annex, for multi-site statement
has been verified in accordance with ISO 14064-3:2019 as meeting the requirements of

ISO 14064-1:2018

Direct Emissions [Category 1]
86,980,463.45 tonnes of CO_2e
Indirect Emissions from Imported Energy [Category 2]
3,824,170.94 tonnes of CO_2e
Indirect Emissions from Transportation [Category 3]
5,746,826.63 tonnes of CO_2e
Indirect Emissions from Products Used by An Organization [Category 4]
30,210,520.76 tonnes of CO_2e
Indirect Emissions Associated with The Use of Products from The Organization [Category 5]
1,099,409.04 tonnes of CO_2e
Indirect Emissions from Other Sources [Category 6]
[be determined as non-significant indirect emissions and not quantified]
Total Emissions Quantified
127,861,390.82 tonnes of CO_2e

Authorized by
David Xin
Sr. Director - Knowledge
DATE: 9 Mar. 2023
SGS-CSTC Standards Technical Services Co., Ltd.
16F Century YuHui Mansion, No. 73 Fucheng Road, Beijing, P.R. CHINA 100142
t +86 (0)10 58251188 www.sgsgroup.com.cn
Several statements have been issued for this scope, this is main statement

Page 1 of 4

Statement of Conformity CN22/00000466

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in
1 Jan. 2020 to 31 Dec. 2020 of

Baoshan Iron & Steel Co., Ltd.
Baoshan Iron & Steel Co., Ltd. (Baoshan Base)
Wuhan Iron and Steel Co., Ltd. (Qingshan Base)
Baosteel Zhanjiang Steel Co., Ltd. (Dongshan Base)
Shanghai Meishan Iron & Steel Co., Ltd. (Meishan Base)

Business address: No. 885, Fujin Road, Baoshan District, Shanghai City, P.R. China
Organization boundary: Detail organization boundary information has been listed in Annex, for multi-site statement
has been verified in accordance with ISO 14064-3:2019 as meeting the requirements of

ISO 14064-1:2018

Direct Emissions [Category 1]
85,916,939.41 tonnes of CO_2e
Indirect Emissions from Imported Energy [Category 2]
4,020,421.86 tonnes of CO_2e
Indirect Emissions from Transportation [Category 3]
5,126,640.75 tonnes of CO_2e
Indirect Emissions from Products Used by An Organization [Category 4]
28,508,131.55 tonnes of CO_2e
Indirect Emissions Associated with The Use of Products from The Organization [Category 5]
723,047.14 tonnes of CO_2e
Indirect Emissions from Other Sources [Category 6]
[be determined as non-significant indirect emissions and not quantified]
Total Emissions Quantified
124,295,180.71 tonnes of CO_2e

Authorized by
David Xin
Sr. Director - Knowledge
DATE: 9 Mar. 2023
SGS-CSTC Standards Technical Services Co., Ltd.
16F Century YuHui Mansion, No. 73 Fucheng Road, Beijing, P.R. CHINA 100142
t +86 (0)10 58251188 www.sgsgroup.com.cn
Several statements have been issued for this scope, this is main statement

Page 1 of 4

BAOSTEEL

For more information, please visit the official website of Baosteel

http://www.baosteel.com

Or follow "Hello Baosteel" wechat official account