

A Responsible Steel Company, A Beautiful Future



CSR and ESG Report 2022
Angang Steel Company Limited

About This Report

Dear readers,

The CSR and ESG Report 2022 of Angang Steel Company Limited systematically discloses the philosophies, actions and effects of Angang Steel Company Limited in 2022 regarding environment, social responsibility, and corporate governance in an objective, standard, transparent, and all-around way.

Angang Steel Company Limited

March 2023

Time horizon

This Report describes events of the Company during the period from January 1, 2022 to December 31, 2022. In order to ensure the consistency and comparability of contents, part events may happen beyond the above-mentioned time horizon.

Release cycle

This Report is an annual report which is usually released in March of the next year.

About company name

For the convenience of expression and reading, “Angang Steel Company Limited” is also expressed as “Angang Steel”, “the Company/it”, or “we/us/our” in this Report. “Anshan, Yingkou and Chaoyang production bases” are expressed as the “three bases” in this Report.

Scope of the Report

Angang Steel Company Limited and its subsidiaries, branches and direct affiliates.

Data source

All data used in this Report are from the official documents and statistical reports of Angang Steel Company Limited.

Basis of compilation

© Environmental, Social and Governance Reporting Guide by The Stock Exchange of Hong Kong Limited

© Guidelines No. 1 of Shenzhen Stock Exchange for Self-regulation of Listed Companies – Standardized Operation of Companies Listed on Main Board

© GRI Standards by Global Sustainability Standards Board

© 2030 Agenda for Sustainable Development by the U.N. (SDGs)

© Guidance for State-owned Enterprises to Better Fulfill Social Responsibility (GZFYJ [2016] No. 105) by State-owned Assets Supervision and Administration Commission of the State Council

© GB/T 36001-2015 Guidance on Social Responsibility Reporting

Language and version

This Report is made in both Chinese and English. If there are differences in the contents between the Chinese and English versions, the former shall prevail.

Acquisition of the Report

You can download the electronic version of this Report from the official website of Angang Steel Company Limited (http://www.ansteel.com.cn/).

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Message from Chairman

"Industry forms the foundation for building our country". At such a crucial moment when the steel industry is transforming from a large-scale one to a stronger one, the steel industry is deepening the supply-side structural reform and gradually shifting its direction to green and intelligent manufacturing, which brings huge challenges and opportunities. As the cradle of the steel industry of China, Ansteel has witnessed the glorious development process of the great rejuvenation of China and created a shining brand of Ansteel in serving the country's economic and social development. Angang Steel, as a core enterprise of Ansteel Group known as "cradle of Chinese steel industry", actively plays its role as "The Pillars of a Great Power" and "Steel Spine" and devotes itself to becoming the most competitive flagship steel company in this sector.

The year 2022 marks the start of the journey toward the Second Centenary Goal, and also a key year witnessing the Company's high-quality development. In 2022, we stayed true to our founding mission of "manufacturing better materials for creating better life" and always adhered to our core values of "innovation, realistic spirit, hard work, and dedication", so as to promote the sustainable development of economy, society and environment and stride forward on the new journey of high-quality development for the steel industry.

Seeking the joint advancement of the steel industry and high-efficiency governance to create multiple values. Complex, volatile environments (including internal and external ones) and industry trends (such as green and low-carbon transformation) pose operation, regulation and security risks for our business while offering exciting opportunities. On the basis of ensuring that the Company operates in accordance with laws and regulations, we continued to deepen internal reform, comprehensively promote standardized and digital management, and improve the environmental, social and governance (ESG) management system. We also integrated the system into our operation & management in a top-down approach. All these were to achieve the maximum comprehensive value of the enterprise, the society and the environment.

Seeking the joint development of the steel industry and green environment to safeguard the beautiful ecological environment. "A sound ecosystem is essential for the prosperity of civilization." Facing the new requirements of clean manufacturing, green upgrading and low-carbon and circular development of the steel industry, we firmly upheld the eco-friendly and green development philosophy. Specifically, we promoted clean production in an all-around way, tapped into the potential for energy conservation and carbon emission reduction, and continued innovation in environmental protection technology, so as to minimize resource use, and realize harmless discharge, clean energy utilization and eco-friendly development. In this way, we set a good example for "peaking carbon dioxide emissions in the industry", and achieved a harmony between modern, eco-friendly steel production and beautiful plant environment.

Seeking common prosperity of the steel industry and the society to create a beautiful life. "A large-scale enterprise should shoulder heavier responsibilities." We inherited the red culture of Ansteel and promoted the common prosperity of the enterprise and the society by following the principles of integrity, responsibility and benefit to the society. We built a diverse, inclusive and promising development platform for our employees, and provided our customers with high-quality products and services. We never gave up shouldering the due responsibilities as a central state-owned enterprise. To this end, we provided assistance for rural revitalization, devoted ourselves to public charity, and shared the fruits of development with all sectors of society.

The year 2023 marks the first year of fully implementing the guidelines of the 20th CPC National Congress, as well as the crucial year of pushing forward the 14th Five-Year Plan. Standing from the present and looking into the future, we will continue to expand the new model and path of high-quality development, and to expand the multiple values in economy, society and environment, thus to inject dynamic energy into the high-quality development of new Ansteel, and work together with our stakeholders to create a brighter future.

About Us

Company profile

Angang Steel Company Limited (hereinafter referred to as “the Company” or “Angang Steel”) is a large-scale steel production and sales enterprise in China. It was established by Ansteel Group Corporation Limited, the only founder, on May 8, 1997 and was listed on the Stock Exchange of Hong Kong and Shenzhen Stock Exchange respectively. At present, the Company, headquartered in Anshan City, Liaoning Province, registers capital of RMB 9.401 billion.

Main businesses

Angang Steel is mainly engaged in steel rolling. It owns production lines and supporting facilities for the whole process of steel production including coking, sintering, ironmaking, steelmaking, steel rolling, rail transport, and energy and power, as well as a sound industry chain for logistics, trade, and steel processing services. It also has major equipment which has reached an advanced level in this era. At present, it has three production bases in Anshan, Headquarters, Chaoyang and Bayuquan respectively, as well as sales service and processing, distribution institutions in Beijing, Shenyang, Shanghai, Guangzhou, Tianjin, Yantai, Dalian, Changchun, Wuhan, Hefei, and Zhengzhou. It also has international businesses relying on the overseas sales institutions of Ansteel Group.

Diversified main business

Angang Steel has diversified products including plates, pipes, sections, rods, wires, etc. It has relatively complete product categories and specifications covering hot-rolled coils, medium plates, cold-rolled sheets, galvanized sheets, color-coated sheets, cold-rolled silicon steels, heavy rails, profiles, seamless steel tubes and wire rods. Its products are widely used in the sectors including machinery, metallurgy, petroleum, chemical engineering, coal, power, railway, watercraft, vehicle, building, home appliance, aviation, etc. In addition, It ranks 1st in China regarding sales volume of steel for shipbuilding and railway. It owns famous brand products such as products with high technology content, for example electric steel and steel for vehicle, nuclear power, petroleum and petrochemical product, home appliance and container. Besides, it is an international leader in the research & development of new types of ship plates and railway rails and the production technology of steel rails. It is also leading in the industry regarding the technical and technological level of a series of products such as the high-strength thick-walled pipeline steel for high-pressure oil & gas transportation in deep sea. The Company also has China's first national key laboratory of metallic materials for marine equipment and their application. The Company has gained high popularity and good reputation, and won the title of “China Famous Brand Product” by virtue of its steel for railways, steel plates for containers and shipbuilding plates.

Key performance in 2022

Iron production volume
26.2355 million tons

Steel production volume
26.5866 million tons

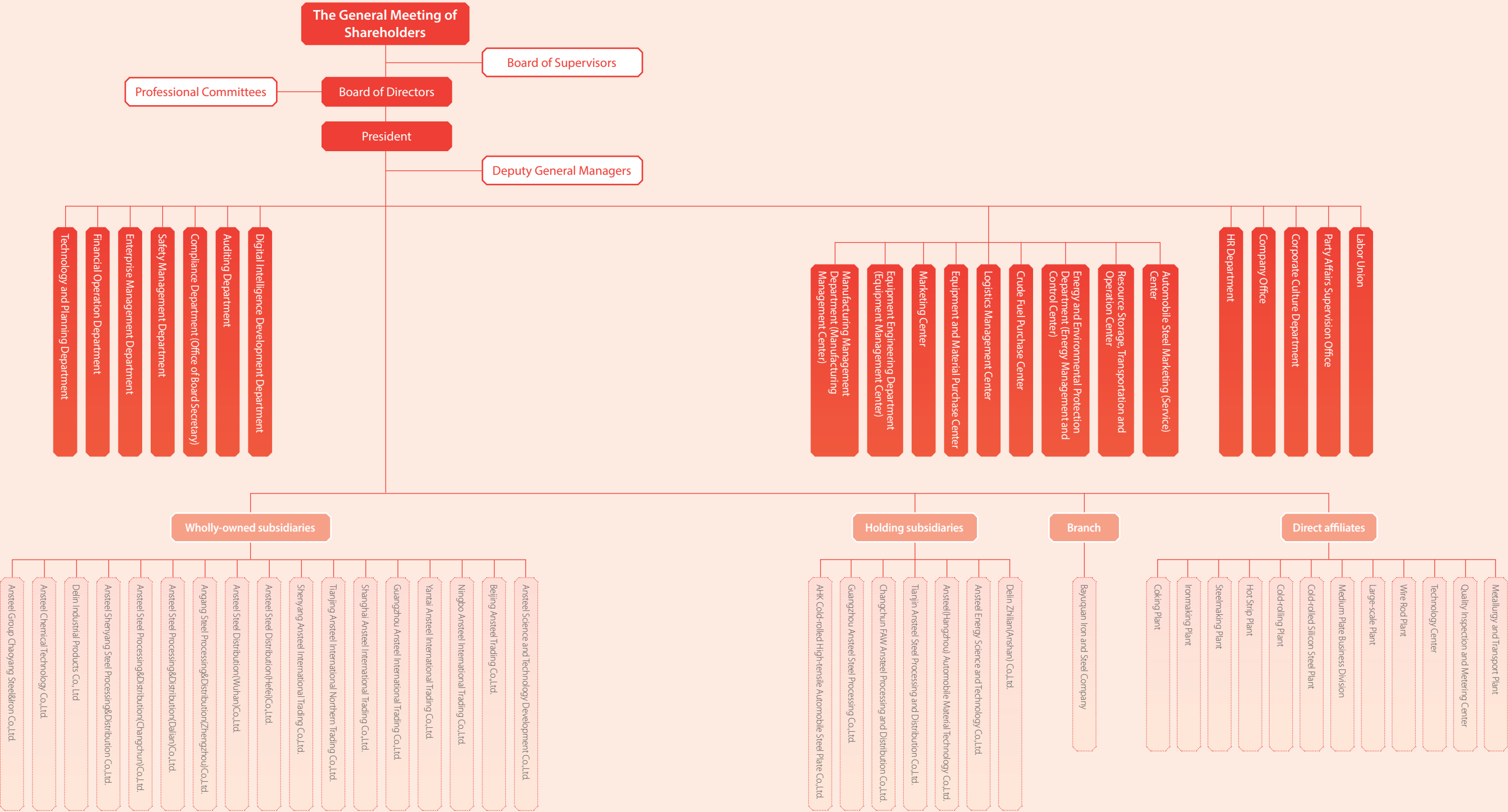
Steel product production volume
25.0838 million tons

Total assets
96.935 billions yuan

The total number of employees was
29,303



Organizational chart



Figures in 2022

Governance



The Board of Directors received **6** training courses on anti-corruption.

Anti-corruption trainings for the Board of Directors covered **32** persons.

4 reports were disclosed on a regular basis.

60 provisional notices were disclosed.

18 telephone surveys on the Company were received from institutions.

Environment



The environmental investment reached RMB **877** million.

The energy consumption per 10,000 yuan output value reached **2.02** tons of standard coal equivalent/10,000 yuan.

The comprehensive energy consumption of steel/ton reached **564.4** kg standard coal/ton.

The carbon dioxide emissions per 10,000 yuan output value reached **5.53** tons/10,000 yuan.

The investment in environmental protection training reached RMB **225,000**.

Fresh water consumption of steel/ton reached **3.23** tons.

Water recycle rate reached **98.46**%.

Society



The total number of employees was **29,303**.

The rate of signing labor contract maintained **100**%.

The average training hours per employee is **65.9** hours.

The investment in research & development reached RMB **2,621,450,000**.

The proportion of female managers was **0.63**%.

The fund for offering targeted assistance mounted up to RMB **16,399,300**.

The proportion of localized purchase occupied **49.24**%.



Joint advancement of the steel industry and high-efficiency governance

Opportunities and challenges

Under the development trend of economic globalization, China has accelerated the introduction of measures for deepening reform, and the capital market has put forward stricter ESG requirements, which will require companies to pay more attention to public opinion management, investor relationship management and business ethics, and bring profound changes to the business philosophy and operation of enterprises. Sound enterprise governance helps to guarantee its efficiency of sustainable operation, fairness, independence and structural diversification.

Our actions

We reviewed the setup and management of Board of Directors, remuneration of senior executives, equity structure and others, so as to ensure that our business operations complied with the laws, regulations and ethical standards. Further, we aimed to deepen internal transformation and development, promote quality and efficiency of business operations, increase our competitiveness in all aspects and protect the interests of all parties concerned. We also perfected our ESG management system and organizational structure and advanced ESG governance from top to bottom, thus achieving sustainable development of the enterprise, the society and the environment.

Our achievements

The Board of Directors received **6** trainings on anti-corruption.

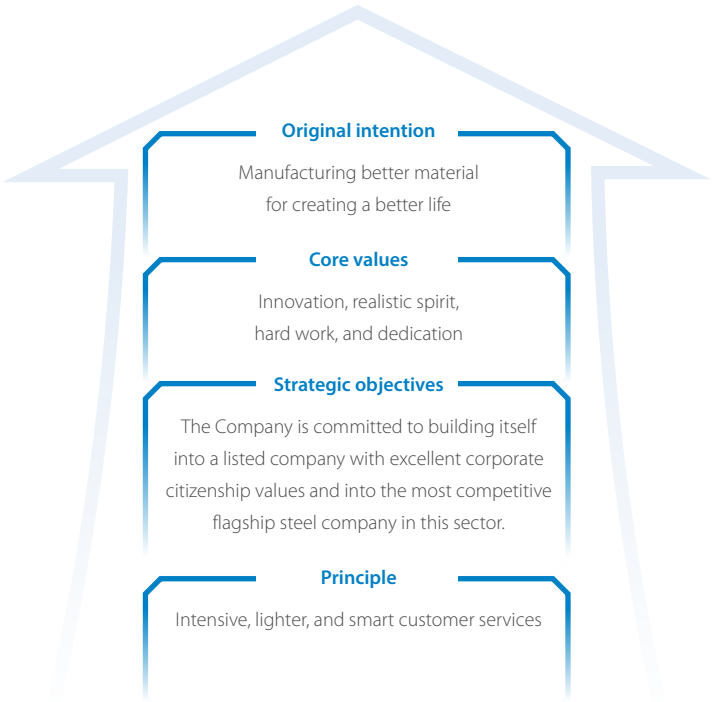
4 reports were disclosed on a regular basis.

18 telephone surveys on the Company were received from institutions.

Development strategy

Bearing in mind our founding mission of “manufacturing better materials for creating better life”, we took the sustainable development of enterprise economy, society and environment and the comprehensive value maximization as our fundamental purpose, and contributed to the great goal of building into a flagship steel company boasting the most powerful competitiveness in the steel sector.

We advocated and adhered to the development philosophy of responsibility, and integrated economic, social and environmental considerations into business decision-making to generate sound management and operations. Our core objective in ESG management is “A Responsible Steel Company, A Beautiful Future”. To be specific, it is aimed to promote sustainable development of the enterprise economy, society, and environment and realize maximization of comprehensive values, build an image of responsible steel enterprise, and create a better life together with stakeholders.



Governance structure

Angang Steel in accordance with the *Company Law of the People's Republic of China*, *Securities Law of the People's Republic of China*, relevant regulations of China Securities Regulatory Commission, and the *Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited (the Listing Rules)*, *Guidelines No. 1 of Shenzhen Stock Exchange for Self-regulation of Listed Companies – Standardized Operation of Companies Listed on Main Board*, the Company has established its *Articles of Association*, *Rules of Procedure for Shareholders' Meeting*, *Rules of Procedure for Board of Directors*, *Rules of Procedure for Board of Supervisors*, *Working System for Independent Directors* and other relevant rules and regulations. The Company formed a governance structure and effective internal control system, in which the Shareholders' Meeting, Board of Directors, Board of Supervisors, and Management divided their work and shouldered their responsibilities respectively with effective checks and balances, thus ensuring shareholders' rights and interests and creating long-term values for them.

The Board of Directors sets up four special committees, all of which are composed of the directors. Among them, in the Audit Committee, Nomination Committee, and Remuneration and Appraisal Committee, independent directors are in the majority and act as the convenors. Angang Steel set up a three-level management structure composed of decision making & supervision, operation & management, and implementation levels to strengthen the management and implementation of ESG indicators from the top down, which further strengthened its core competence and sustainable development ability.

Key performance in 2022

Independent directors make up **57**% of the Board of Directors.

The Company held **18** meetings of the Board of Directors.

The Company deliberated and passed **50** proposals concerning ESG reports and internal control and evaluation reports, etc.

The Company held **7** meetings of the Board of Supervisors.

The Company deliberated and passed **12** proposals concerning the Board of Supervisors' working report and others at the meetings.

*Pepresents data as of the end of 2022

Risks and opportunities

The Company has a deep understanding of both great opportunities and risks in supply, business operation, supervision and safety brought by external environments and industrial trends such as international steel market, low-carbon transition of energy and industry restructuring. Given this, it identified and evaluated risks regularly, and optimized the resource benefit of business operation, so as to strengthen its adaptability to uncertainties in economy, society and environment and to achieve more resilient development.

External environment and industry trend	Description of risks and opportunities	Our actions
Rise of trade protectionism	◆ Steel enterprises will face more and more international trade disputes, which may bring many adverse effects to export of steel products.	◆ Strengthened coordination and communication with domestic strategic customers, accelerated the cooperation with overseas factories, and explored new models of cooperation with these factories.
Slowdown in global economic growth	◆ Overcapacity in the world steel industry persists. ◆ The upstream suppliers on the supply chain of steel materials face business risks.	◆ Optimized the industry chain layout, strengthened the establishment of a sustainable supply chain, and helped upstream manufacturers reinforce risk management.
Sluggish recovery in domestic economy	◆ With a weak recovery in the domestic infrastructure projects and real estate market and small stimulus measures initiated by the government, the demand for steel materials is likely to see a small and steady increase.	◆ Strengthened the market survey and analysis; grasped the market laws; followed up the market trends; determined the output according to sales prospects.
Low-carbon transition in the steel industry	◆ The steel enterprises have complex discharge mechanism, which involves many decarbonization links. Therefore, they face both urgent needs of low carbon technology innovation and great opportunities of low carbon transition.	◆ Increased input in low-carbon technology research and development, and developed more competitive products. ◆ Expanded substitution with renewable energy sources, shut down outdated production facilities, and fully unleashed the potential of energy conservation and carbon emission reduction.
Accelerated progress of merger and reorganization	◆ The settlement of employees as a result of merger and reorganization faces social and commercial risks.	◆ Provided employees with equal and diversified employment opportunities and a stage for them to realize their values. ◆ Cultivated the high-caliber talents that can shoulder the heavy responsibility for transformation and upgrading in the steel industry.
Higher requirements in work safety	◆ Steel production relates to the hazard sources such as hazardous chemicals, as well as enterprises supporting production and operation of the Company or providing services for the Company; therefore, we also face work safety risks caused by the inadequate supervision or inspection.	◆ Carried out special campaigns to ensure the work safety, and facilitate the building of a dual system for the hierarchical management of safety risks and hazard investigation & elimination.
Fiercer competition in the steel sector	◆ Steel enterprises suffer from fierce external market competition, and huge pressure from environmental governance, In addition, they face low added value of products and challenges await combination of scientific achievements and market demands.	◆ Innovated mechanisms & systems and launched more pioneering, revolutionary and strategic projects based on science & technology leadership plan.

Ethical policy and practice

The Company consolidated the foundation of sustainable development through more efficient internal control, fully implemented the rule of law, and established compliance management system. It also complied with business ethics and codes, strengthened the capacity of management and control in all aspects, and took the initiative to be a good corporate citizen.

Key performance in 2022

The Board of Directors received **6** trainings on anti-corruption.

The trainings covered **32** persons.

The Company had **0** corruption lawsuit involving itself and its employees.

Compliance with laws and regulations

Following the overall plan of building Ansteel according to the rule of law, the Company centered on the key tasks of reform and development, and coordinated and advanced the rule of law simultaneously with its reform and development, thus to strengthen the enforcement of laws among its subordinate companies level by level. It perfected its management system for compliance with laws and regulations, and realized full coverage and regular publicity of the rule of law, thus laying a solid foundation for its high-quality development.

We completed our tasks according to the requirements of "the Year of Strengthening Compliance Management". To be specific, we set up a Working Group for the Year of Strengthening Compliance Management, a working mechanism of compliance administrators, and a management platform composed of all business units and 232 compliance administrators. We also set seven priorities, i.e., strengthening the leadership's compliance awareness, improving the compliance management system, perfecting the corporate governance system, strengthening the compliance management in key fields, taking special actions for compliance operation, evaluating on compliance management actions and carrying out compliance publicity and education. In this respect, we subdivided these priorities into 36 specific tasks, and defined persons in charge and time schedule.

Key performance in 2022

The Company organized activities to promote a culture of integrity for over **200** times.

The trainings covered **4,000** persons.

Clean governance

The Company insisted to advance the "anti-corruption in three aspects" simultaneously to promote a culture of integrity. It also promoted the improvement, building and governance of such a culture through typical cases to maintain a clean and upright atmosphere in the enterprise. It publicized its report hotline and letter box to receive supervision by all parties and strengthened employees' consciousness of clean practice and self-discipline in all aspects.

Intellectual property protection

Focusing on the needs of improving its core competitiveness and expanding international businesses, the Company highlighted the quality and value orientation of intellectual property, and developed high-value, core patents and proprietary technology. Its intellectual property management system covered patent, proprietary technology, software copyright, technology output and other modules, achieving full coverage of all units from products to projects.

Information security protection

The Company ensured strict protection over all kinds of information, including customer information, by building a solid protection system for network information security. Also, it utilized the situational awareness platform to perform all-weather, real-time monitoring and timely discover and handle all risks about information security.

Guarantee of investors' rights and interests

The Company kept the channels of communication open, optimized the information disclosure process, guaranteed the accurate and standard disclosure of relevant information, and constantly improved the transparency of business operation. Additionally, it formulated the *Work Programme for Investor Relationship Management*, strengthened communication with investors by holding performance presentations and participating in strategy meetings organized by brokers, and conveyed its investment confidence to investors.



CSR Honors and Awards

- ◎ The Company won the Gold Medal for Investor Relationship (2021) – Diligence Award for Performance Presentations.
- ◎ The Company was listed on the Handsome Returns Category of CAPCO 2021 Cash Dividend List of A-share Listed Companies.
- ◎ The Company won the "Grade A" evaluation of Shenzhen Stock Exchange 2021 Annual Information Disclosure.



Expanding communication channels

The Company held the online presentations of 2021 annual results and of 2022 interim results, during which its Management communicated with investors directly and efficiently on the current situation of its production and operation, ESG, development trend of the industry, dividend policy and other issues of concern to investors.

The Company organized 20 activities concerning investor relationship, during which it communicated with 118 institutions and 125 investors. It also participated in the activities organized by CSRC Liaoning Regulatory Bureau on the online group reception day for investors of listed companies in Liaoning Province, through which it accurately conveyed its investment confidence to investors.

The Company answered 153 questions that investors were concerned about, including cash dividend policy and its operating conditions, via irm.cninfo.com.cn (website of Shenzhen Stock Exchange), to ensure a smooth communication bridge between the Company and investors.

Deepening transparent operation

The Company guaranteed the quality of information disclosure and released 4 regular reports to convey its operating performance to the capital market timely and accurately.

The Company released 60 provisional notices to the public to fully disclose the performance forecast, dividends and changes of senior executives. With an information disclosure accuracy of 100%, these measures enabled investors to understand its business performance in time and protected the legitimate rights and interests of investors.

Key performance in 2022

4 reports were disclosed on a regular basis.

60 provisional notices were disclosed.

18 telephone surveys on the Company were received from institutions.

2 achievement meetings were held.

Improvement of quality and increase in efficiency

The Company focused on high-quality development. To this end, The Company strengthened management & control and set up benchmarks through standardization, refinement, and IT application, and promoted the comprehensive improvement of both quality and efficiency in business operation, so as to create more values for interested parties.

Key performance in 2022

Total assets	96.935	billions yuan
Total profits	156	millions yuan
Total tax	3.229	billions yuan

Focusing on high-quality development

- The Company promoted reform in three aspects with advanced practices in the industry as its goal. To be specific, it sorted out and reviewed organizational structure, management function and business process, and improved the Corporate Functions Compilation of Angang Steel to stimulate talents' vitality and increase the efficiency of enterprise resource.
- Guiding by the development strategy of the 14th Five-Year Plan, the Company focused on the key areas directly related to income and efficiency increase, determined measures of key work in four aspects, 16 tasks and 79 assignments. It also designated departments bearing responsibilities, clarified the specific results and corresponding time nodes, to coordinate the effective implementation of these measures.
- Focusing on the gap between its key performance indicators and those of advanced enterprises in the industry, the Company continued to track the implementation of all improvement measures and indicators, regularly carried out statistical analysis and self-appraisal, thus to improve its management level and ability.

Strengthening internal control

- The Company insisted on the goal of "strengthening internal control, preventing risks, and promoting compliance", and formed a comprehensive and closed-loop long-term mechanism throughout the whole system and process with the participation of all personnel to improve the efficiency of the internal control system.
- The Company carried out 17 audit projects, including special audit and economic responsibility audit, and focused on special supervision and inspection of key links and major areas, thus revealing management problems and operational risks, preventing frauds and correcting errors, and upgrading the management of business operation and project construction.

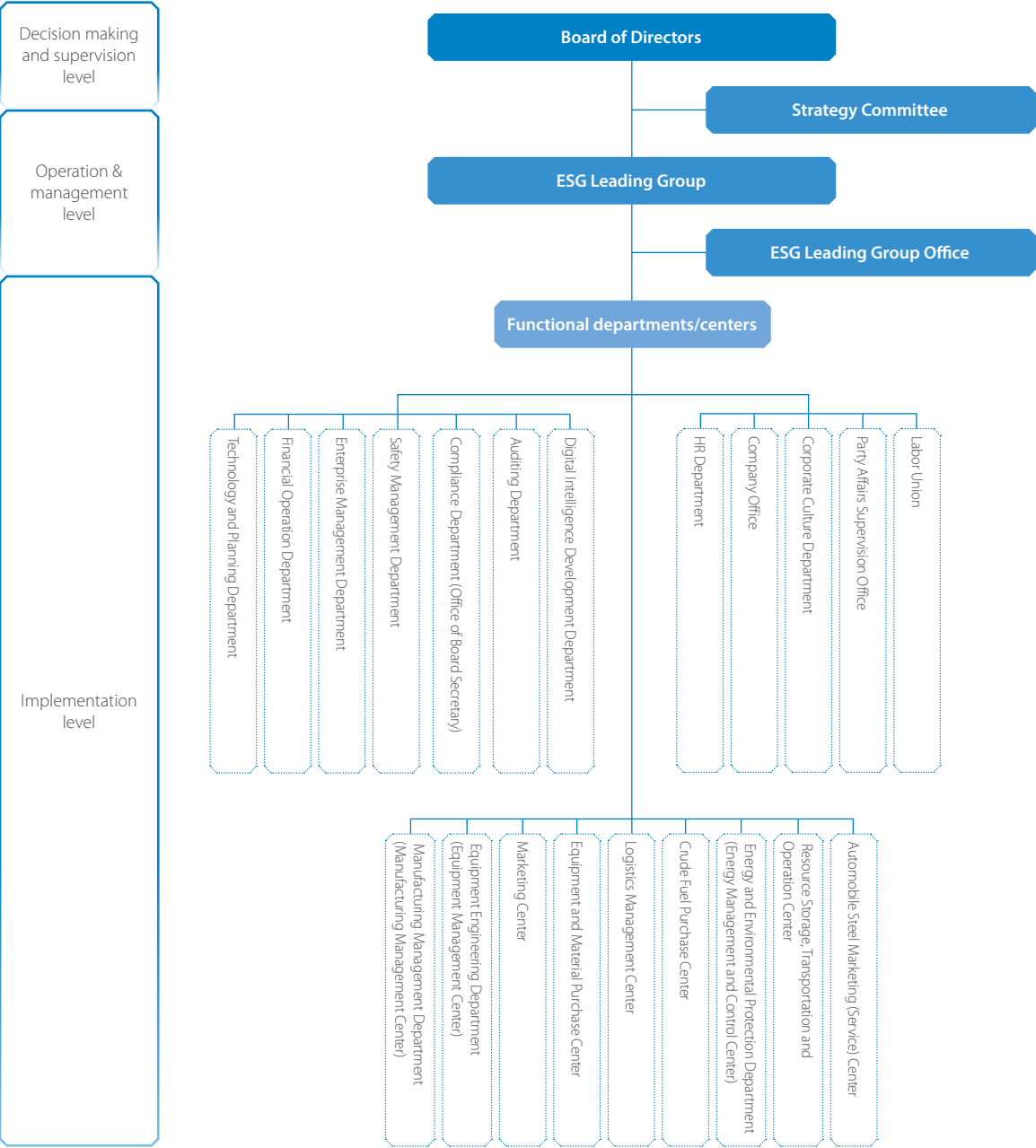
Boosting intelligent operation

- The Company accelerated the building of "a Smart Ansteel" by creating an integrated management & control system platform to tap data values, "tell the truth and give evidence using data", and help reduce cost and increase efficiency.
- Through accurately controlling project investment, and strengthening project implementation and management, the Company finished intellectualized reconstruction of 17 production lines, and boosted the completion of the Demonstration Base for Intelligent Manufacturing Pilot of Bayuquan Steel Branch.

ESG management

ESG governance structure

The Company has established a three-level management structure from the top down, to integrated ESG indicators into every aspect of its management and operation.



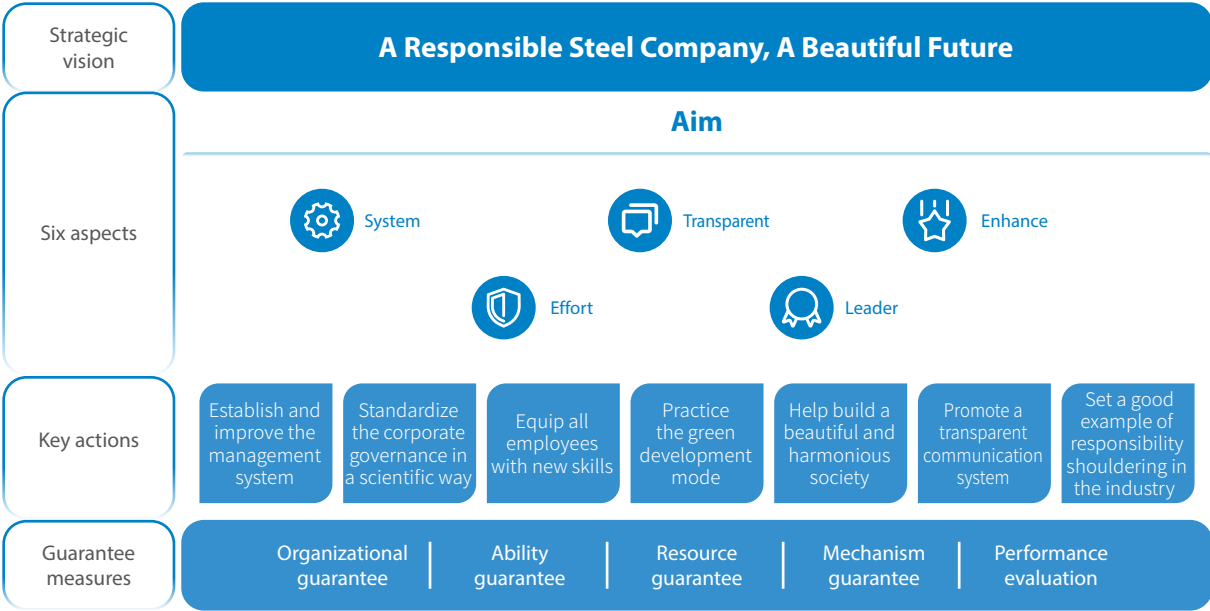
> ESG governance structure of the Company

Decision making & supervision level	Board of Directors	<ul style="list-style-type: none">◆ Examine and approve the Company's ESG vision, principles and policies.◆ Examine and approve ESG disclosure policies and reports.◆ Every year, review the identification and evaluation results of our major ESG risks and opportunities submitted by the Strategy Committee, and determine the major ESG risks and opportunities.◆ Supervise and guide the setting of our ESG goals, and set ESG goals* such as comprehensive energy consumption per ton of steel, energy consumption per 10,000 yuan output value, carbon dioxide emissions per 10,000 yuan output value, safety and health input. We also review the progress and achievement of ESG goals every year, and put forward suggestions for improvement.
	Strategy Committee	<ul style="list-style-type: none">◆ Assist the Board of Directors in supervising and guiding the establishment of ESG vision, principles and policies.◆ Supervise and guide the identification and assessment of our major ESG risks and opportunities, and the Enterprise Management Department shall report these to the Board of Directors in the form of written proposals every year.◆ Supervise and guide the implementation of our ESG management plan, and the Enterprise Management Department shall report it to the Board of Directors in the form of written proposals every year.◆ Supervise and guide the Company's importance evaluation and report of ESG topics.◆ Review the progress and achievement of ESG goals on a quarterly basis and put forward suggestions for improvement.◆ Review the Company's annual ESG report and other relevant reports and submit them to the Board of Directors.
Operation & management level	ESG Leading Group	<ul style="list-style-type: none">◆ Establish the general strategies and goals of ESG management.◆ Organize and guide the Company's ESG work.◆ Organize and guide the establishment of the Company's ESG management system and mechanism.◆ Organize the compilation of the Company's ESG work plans, programs and reports, and report to the Board of Directors.
	ESG Leading Group Office	<ul style="list-style-type: none">◆ Analyze important opportunities and risks; make a risk evaluation and establish response plans for the ESG opportunities and risks deemed as important ones by the Board of Directors.◆ Establish an ESG indicator management system and assign specific ESG management objectives to each department/center.◆ Determine ESG indicators and objectives; manage the ESG indicators and objectives approved by the Board of Directors.◆ Establish the ESG Report Preparation Group composed of ESG liaison officers of each department/center to prepare the annual ESG report.◆ Make periodic updates to the ESG column on the Company's official website.◆ Follow up the capital market and investors' evaluation of the Company's ESG work; reply to the questions and suggestions about ESG put forward by the investors; collect the investors' opinions and suggestions about ESG; report to ESG Leading Group.
Implementation level	Functional departments/ centers	<ul style="list-style-type: none">◆ Establish the management objectives of its own department/center's ESG indicators.◆ Take charge of the daily follow-up, management and statistics of its own department/center's ESG indicators in the ESG information disclosure indicator system.◆ Provide relevant information and data for the ESG Leading Group Office to respond to the investors.

*Please refer to pages 25 and 41 of this Report for the setting and completion of ESG goals.

ESG promotion program

The Company has formed an "A-STEEL" Program based on the industrial characteristics, its own development and core cultures. Specifically, it's composed of six aspects, namely, Aim, System, Transparent, Enhance, Effort, Leader, to support the implementation of the strategic vision.

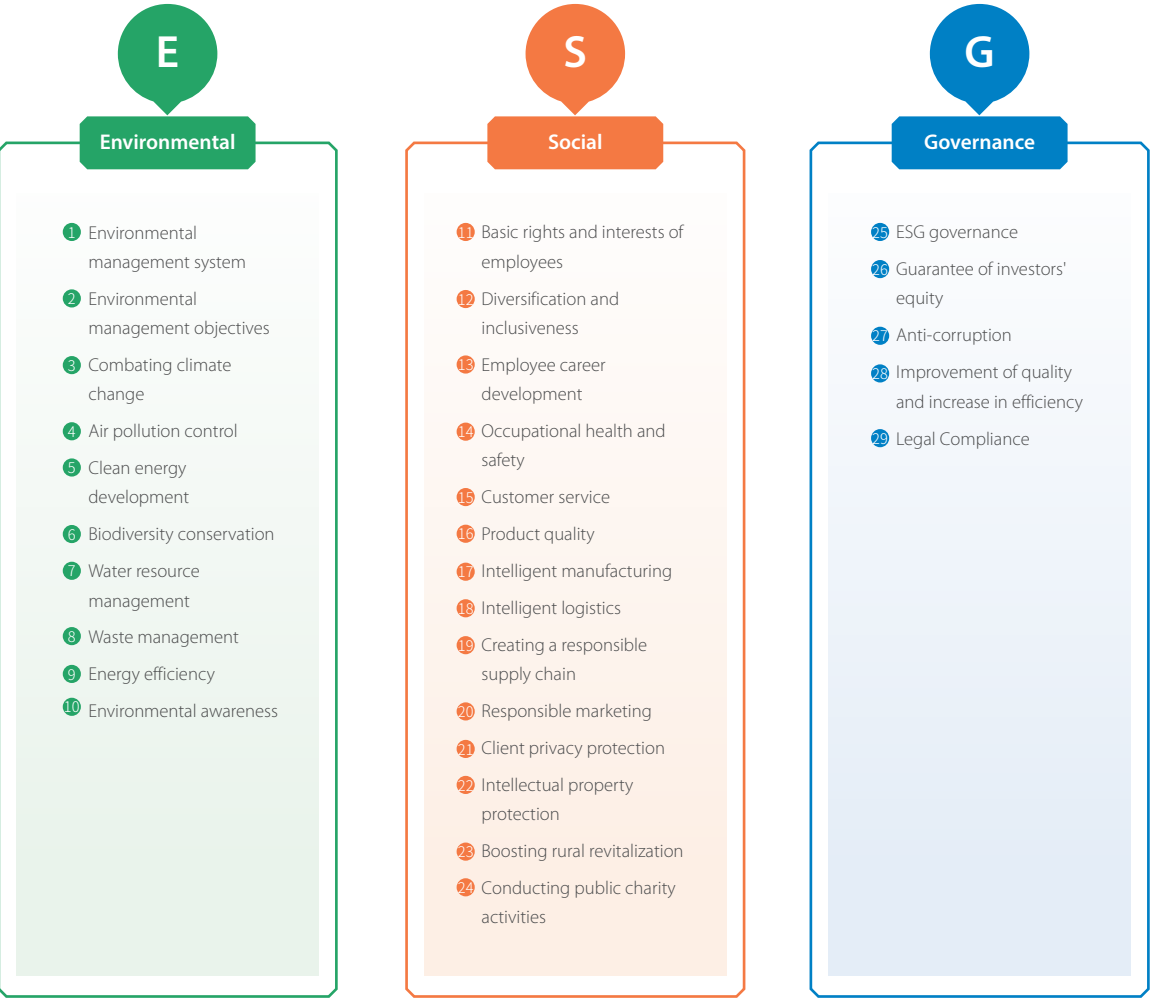
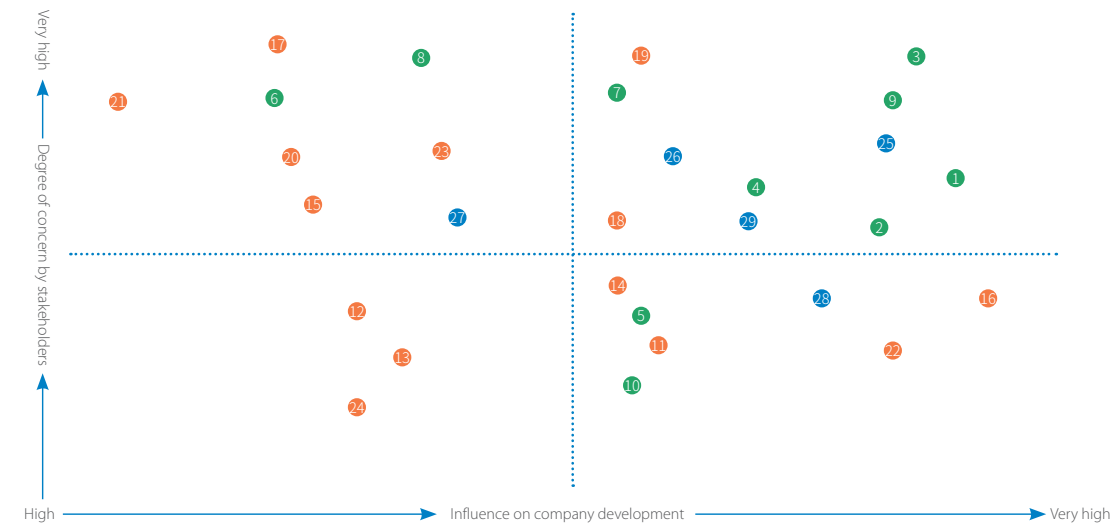


> A-STEEL promotion program of the Company

Material issues

The Company combined the stakeholders' opinions with the sustainable development trend, features of the steel industry, characteristics of its business, and requirements of the capital market. By virtue of this, it identified, prioritized and managed significant issues, thus developing proactive and targeted solutions to meet the expectations of stakeholders.

Screening of issues	Survey of stakeholders	Evaluation of material issues	Review and confirmation
Establish the Company's library of ESG issues according to relevant ESG guidance documents, relevant standards for sustainable development, and the Company's important ESG practices.	Know about the important ESG issues concerned by stakeholders through meetings for communication with investors, suppliers and governments, and meetings of workers' representatives, etc.	Put the ESG issues in order according to their importance and priority based on their influence on the Company's development and degree of concern by stakeholders.	The Company's Board of Directors examines and determines the importance of ESG issues, and the report will describe in detail these important ESG issues.



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Basic rights and interests of employees

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Diversification and inclusiveness

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Employee career development

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Customer service

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Product quality

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Boosting rural revitalization

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Conducting public charity activities

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ESG governance

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Guarantee of investors' equity

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Anti-corruption

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Improvement of quality and increase in efficiency

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Legal Compliance

Communications with stakeholders

The Company listened carefully to the requirements and suggestions of all parties with attention, constantly expanded the channels and means for communicating with stakeholders, and adequately guaranteed the stakeholders' rights to know, participate and supervise, thereby promoting the continual improvements of ESG management and practice and maximizing the comprehensive values of stakeholders.

Stakeholders	Expectations of stakeholders	Communication and response
Government	<div><div>◆</div>Comply with laws and regulations</div> <div><div>◆</div>Respond to policies</div>	<div><div>◆</div>High-level discussion</div> <div><div>◆</div>Report information</div> <div><div>◆</div>Receive visitors</div> <div><div>◆</div>Coordinate conference</div> <div><div>◆</div>Regular visit</div>
Regulatory authority	<div><div>◆</div>Ensure open and transparent information</div> <div><div>◆</div>Meet the supervision requirements</div>	<div><div>◆</div>Release notices periodically</div> <div><div>◆</div>Accept inspections of the supervision department</div>
Shareholder	<div><div>◆</div>Maintain and increase value of assets</div> <div><div>◆</div>Ensure open and transparent information</div>	<div><div>◆</div>Hold performance presentations</div> <div><div>◆</div>Convene meetings for communication with investors</div> <div><div>◆</div>Release regular reports</div>
Customers	<div><div>◆</div>Ensure smooth communications</div> <div><div>◆</div>Guarantee product quality</div>	<div><div>◆</div>Open customer hotlines</div> <div><div>◆</div>Conduct customer satisfaction surveys</div>
Employee	<div><div>◆</div>Guarantee wage and welfare</div> <div><div>◆</div>Ensure employee health and safety</div> <div><div>◆</div>Provide fair promotion and development opportunities</div> <div><div>◆</div>Care for employees</div>	<div><div>◆</div>Convene meetings of workers' representatives</div> <div><div>◆</div>Carry out recreational and sports activities</div> <div><div>◆</div>Conduct employee satisfaction surveys</div> <div><div>◆</div>Transparency in factory affairs</div> <div><div>◆</div>Rationalization proposal</div>
Partner/supplier/industry	<div><div>◆</div>Keep commitment</div> <div><div>◆</div>Ensure transparent purchase</div> <div><div>◆</div>Promote industrial progress</div>	<div><div>◆</div>Carry out strategic cooperation</div> <div><div>◆</div>Communicate on a regular basis</div> <div><div>◆</div>Disclose purchase information</div> <div><div>◆</div>Participate in industrial exchanges</div>
Environment	<div><div>◆</div>Strengthen environmental management</div> <div><div>◆</div>Promote energy conservation and emission reduction</div> <div><div>◆</div>Boost the realization of the carbon dioxide peaking and carbon neutrality objectives</div>	<div><div>◆</div>Release reports periodically</div> <div><div>◆</div>Disclose environmental information.</div>
Community	<div><div>◆</div>Serve the local economy</div> <div><div>◆</div>Improve local people's livelihood</div> <div><div>◆</div>Conduct public charity activities</div>	<div><div>◆</div>Carry out rural revitalization activities</div> <div><div>◆</div>Provide charitable contribution and volunteer services</div>
Media	<div><div>◆</div>Disclose information in an open and transparent way</div>	<div><div>◆</div>Release important information and news in time</div> <div><div>◆</div>Accept media's interviews actively</div>



Joint development of the steel industry and green environment

Opportunities and challenges

As it is stressed in the report of the 20th CPC National Congress, "we should coordinate industrial restructuring, pollution control, ecological protection and response to climate change, while boosting carbon and pollution reduction, green expansion and growth". The work report of the People's Government of Liaoning Province points out that we should unwaveringly promote eco-friendly, and economical, intensive, green and low-carbon development, work on the governance of mountains, water and cities as a whole, and break the old patterns to steadily push forward carbon dioxide peaking.

Our actions

With a long-standing commitment to eco-friendly, green and low-carbon development, the Company has kept optimizing environmental management, collaboratively promoted carbon reduction, energy saving, pollution reduction and green expansion, and pursued lower-carbon industrial development, cleaner production and operation, more efficient energy saving and consumption reduction, and more harmonious ecological environment, in an effort to make green a bright color of new Ansteel in its high-quality development.

Our achievements

The environmental investment reached RMB **877** million.

The comprehensive energy consumption of steel/ton reached **564.4** kg standard coal/ton.

The energy consumption per 10,000 yuan output value reached **2.02** tons of standard coal equivalent/10,000 yuan.

More sound environmental management

The Company kept improving the flexibility and level of environmental management, sought a sound environmental management system, and set clear and firm environmental goals. It also raised the environmental awareness of employees in an all-round way and pursued green and low-carbon development in the steel industry.

Environmental system

To excel, we can go far. The Company continued to improve its environmental management. Specifically, it assessed environmental impacts of projects, strengthened inspection and supervision in routine work, and developed early warning plans in case of emergency, as part of its efforts to ensure legal, standardized and green production and operation in all aspects.

Key performance in 2022

RMB **877** million was invested by the Company in environmental protection.

Supervising and inspecting environmental protection in routine work

The Company conducted 44 special inspections and 3 “second look” inspections for environmental protection in three areas, and urged rectifications of a total of 658 problems found, improving the basic management level and controlling environmental risks.

Implementing “three simultaneousness” principle for construction projects

The Company organized the environmental impact assessments of 15 construction projects, and obtained environmental assessment approval documents for 7 projects. It organized the environmental acceptance of 18 completed projects, with all remaining problems rectified. It also organized the environmental impact post-evaluations on the tar upgrading and needle coke project of Ansteel Chemical Technology Co., Ltd.

Working on environmental warning plans in case of emergency

The Company revised the *Emergency Plan for Heavy Pollution Weather*, and the *Response Plan for Environmental Emergencies*, and perfected the *Emergency Plan for Radiation*. Besides, it re-examined environmental risks, identified and monitored potential accidents or emergencies, and carried out emergency plan drills on ammonia tank leakage to improve its response capabilities for environmental emergencies.

The Supervision Department followed the guidance of standards and specifications

According to the “Calculation method for actual emission of pollutants” in the *Technical Specifications for Pollution Discharge License*, the Supervision Department calculated and monitored environmental indexes on a regular basis, strictly follow the requirements of the *Guidelines on Fair Information Disclosure of Listed Companies*, and carried out statistical disclosure in accordance with the industrial accounting methods and specifications of steel production enterprises. This year, the statistical caliber and methods were consistent with those of previous years.



Environmental objectives

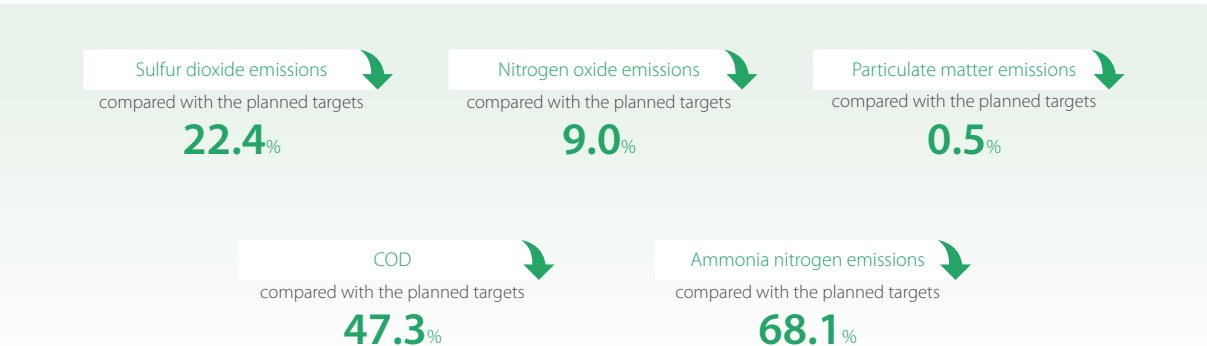
The Company had environmental performance indicators and assessment mechanisms in place, and set clear commitments to sustainable development in terms of energy consumption and waste to strictly control emission limits and accurately break down indicators. The Company saw environmental performance indicators fully met in 2022, handing in a high-quality, green steel development answer sheet.

Environmental performance indicators fully met, In 2022



The Company made three **zero** achievements in major environmental pollution accidents, environmental violations, and penalties.

100% was reached by the Company in terms of the implementation rate of “three simultaneousness” principle for environmental protection of construction projects, the up-to-standard disposal rate of hazardous waste disposal and the up-to-standard use rate of radioactive sources.



Indicator objective	Target value of 2022	Actual value of 2022	Target fulfillment of 2022	
Comprehensive energy consumption of steel/ton (kg standard coal/ton)	565	564.4	Deceased by 0.106% compared with the planned target	Over-fulfilled
Energy consumption per 10,000 yuan output value (ton of standard coal equivalent/10,000 yuan)	2.04	2.02	Deceased by 0.98% compared with the planned target	
Carbon dioxide emission per 10,000 yuan output value (ton/10,000 yuan)	5.6176	5.53	Deceased by 1.5% compared with the planned target	
Sulphur dioxide (ton)	10,618	8,237.9	Deceased by 22.4% compared with the planned target	
Nitrogen oxide (ton)	28,236	25,686.3	Deceased by 9.0% compared with the planned target	
COD (ton)	100	52.7	Deceased by 47.3% compared with the planned target	
Particulate matter (ton)	11,248.7	11,195.4	Deceased by 0.5% compared with the planned target	
Ammonia nitrogen(ton)	25	7.97	Deceased by 68.1% compared with the planned target	

Environmental awareness

The Company increased the investment in environmental training, organized professional environmental protection trainings such as trainings for emission permit and online monitoring management, and encouraged green office for employees, so as to build an enabling atmosphere of caring for the environment and living a low-carbon life across the Company. In 2022, its investment in environmental training was RMB 225,000.



CaseSpecial activity themed “green actions”

In March 2022, the Company organized and completed the pre-assessment of ultra-low emission transformation, identifying a total of 2,984 management problems to be improved, such as air and material leakage. In order to ensure the effect of governance, it set up a special promotion group, with its key leaders taking charge and leading the supervision. This group held monthly and weekly meetings regularly to strengthen leadership and advance work orderly. The Company also conducted second look inspections to improve the standard of rectification, consolidate the results and maintain good results in the long run. Through systematic remediation, all its problems were rectified, with the site environment significantly improved.

Indicator	2020	2021	2022
Annual investment in environmental training (10,000 yuan)	12.8	13.5	22.5
Annual number of people covered by environmental training (persons)	3,300	3,500	3,800

Indicator	2022 green office performance*
Office electricity consumption (kWh)	811,366
Office water consumption (ton)	39,196

*Note: The statistical data are sourced from the two office buildings of a first-level company under the umbrella of the Company.

Lower-carbon industrial development

Upholding the environmental concept of “green manufacturing and low-carbon development”, the Company adjusted its development strategy to the changes in natural conditions, social policies and environments as a result of climate change, sought and applied more low-carbon metallurgical development paths, and led green, low-carbon actions, contributing its share to realizing the “3060” goals of carbon dioxide peaking and carbon neutrality.

Response to climate change

Against the backdrop of climate change where Chinese companies develop their strategies and compete on the world arena, the Company took the initiative to identity the challenges and potential opportunities that climate change may bring to the traditional production and operation mode, and endeavored to explore a path of response to climate change and low-carbon transformation in the relevant business segments and links, as part of its efforts to grow evergreen in the wave of the era of low-carbon development.



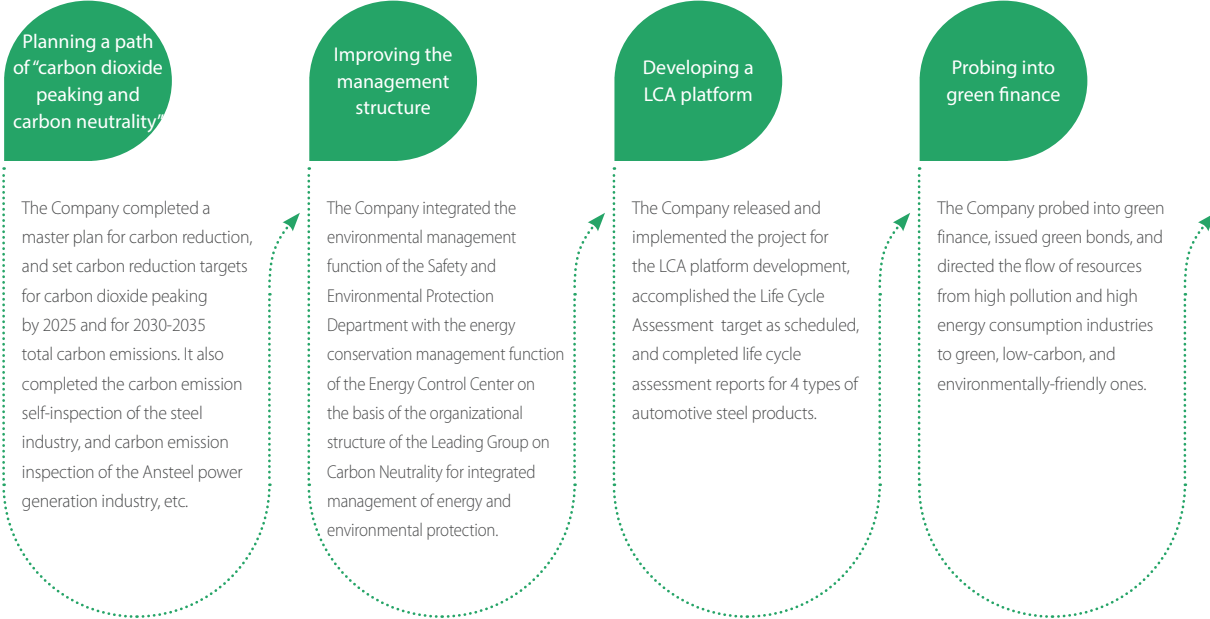
Identification of and Response to Climate Change Risks by Angang Steel

Risk type	Relevant risks caused by climate change	Relevant financial impacts	Response measures
Transition risks	<ul style="list-style-type: none">In 2022, the European Parliament voted to adopt the Carbon Border Adjustment Mechanism (CBAM). According to the CBAM, the EU will levy taxes on cement, aluminum, steel and other products imported from countries and regions with relatively loose carbon emission restrictions, and the risk of carbon tariffs on exported steel products will worsen the export environment, and carbon tariffs may be imposed on exported steel products and export environments may be worsen	<ul style="list-style-type: none">Higher costLower export scaleLower profitability	<ul style="list-style-type: none">Participated in steel Environmental Product Declaration (EPD) certification to break through international trade barriers
	<ul style="list-style-type: none">In November 2022, the Ministry of Ecology and Environment issued the Action Plan for the Elimination of Heavily Polluted Weather, Prevention and Control of Ozone Pollution and Pollution Control of Diesel Trucks. The goal is to largely eliminate the heavily and above polluted weather nationwide by 2025. This requires the domestic regulatory authorities to strengthen the supervision on environmental impacts, energy conservation and emission reduction of enterprises.Climate change may cause the increase in coking coal price, energy consumption expense and logistics cost, as a result of which, the steel production cost and price may be increased, reducing the profit margin.The introduction to and use of radioactive sources in violation of regulations, or leakage and loss of radioactive sources may cause serious environmental pollution or personal injuries, and pressure from public opinions.Failure to timely respond to and deal with the environmental pollution events during manufacturing will affect the Company's reputation.	<ul style="list-style-type: none">Increase in credit risksIncrease in environmental compliance costReduction of production capacityIncrease in technical R&D costReduction of operating revenuesPublic opinion pressure	<ul style="list-style-type: none">Prevented and controlled pollutionDeveloped low-carbon programs and roadmapsProduced more environmental friendly products with lower energy consumptionShut down outdated production facilitiesStrengthened environmental management, made environmental emergency plans, and avoided environmental accidentsCooperated with environmental friendly and energy saving suppliers to reduce the carbon emissions of the supply chain and improve the long-term ability for combating climate change

Risk type	Relevant risks caused by climate change	Relevant financial impacts	Response measures
Physical risks	<ul style="list-style-type: none">◆ The World Meteorological Organization (WMO) and the United Kingdom Meteorological Office jointly released the Global Annual to Decadal Climate Update Report in May 2022. According to this report, at least one year from 2022 to 2026 will become the hottest year on record, and long-term environmental changes such as temperature rise can lead to the increase in electricity consumption and energy costs in the steel manufacturing process, as well as the increase in electricity and energy consumption in offices.◆ In 2022, the WMO released the State of the Global Climate 2021 report. According to the report, the global average sea level reached a record high, and long-term environmental changes such as the sea level rise are likely to affect shipping time, cause transportation delays, or adversely impact overseas exports.◆ Extreme weather events can easily cause the loss of assets in the manufacturing industry, construction and other sectors.◆ Extreme weather may affect the purchase and supply of materials, jeopardizing stability of the supply chain, and reducing the productive forces.◆ Extreme weather events may cause production halts and affect the output.◆ Extreme weather may cause difficulties or interruption of transport, affect clients' delivery time and contract performance capacity.	<ul style="list-style-type: none">◆ Loss of enterprise assets◆ Decline in steel production capacity◆ Increase in the maintenance cost◆ Increase in the operating cost◆ Expenses on legal disputes◆ Expenses on breach of contract◆ Increase in production cost	<ul style="list-style-type: none">◆ Established safety emergency plans and extreme weather response plans◆ Cooperated with the suppliers that can respond actively to climate change risks to improve the overall risk resistance capacity of the supply chain◆ Carried out technical R&D to reduce cost and energy consumption

Probe into low-carbon, green development

The low-carbon economy that emerged from the response to climate change has generated new historical opportunities for enterprises. The Company planned a work path of “carbon dioxide peaking and carbon neutrality”, released projects for the LCA platform development, issued green bonds, and went all out reducing greenhouse gas emissions, as part of its efforts to probe into carbon reduction and fuel a green, low-carbon steel industry.






Environmental protection tips

What is LCA?

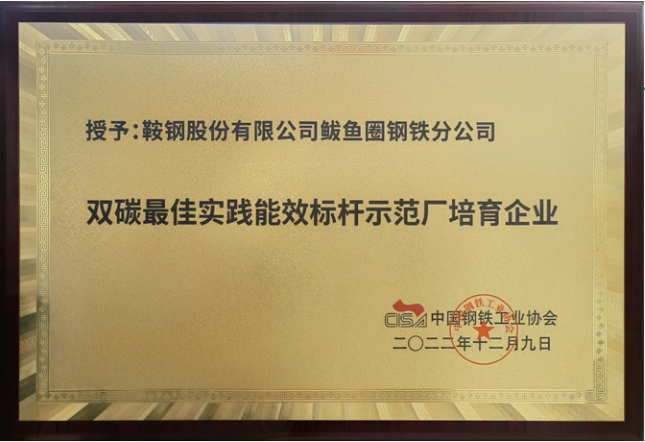
Life Cycle Assessment (LCA) dated back to 1969 when the Midwest Research Institute was commissioned by Coca-Cola to track and quantitatively analyze the entire process of beverage containers from extraction of raw materials to final disposal of waste. LCA is a technique and method used to assess the environmental impact of products throughout their life cycles, i.e., from the acquisition of raw materials to production and till disposal of the products after use. It has been incorporated in ISO 14000 series standards for environment management as an important tool to support the environment management and product design internationally.





CSR Honors and Awards

Bayuquan Steel Branch of Angang Steel was awarded the title of “Energy Efficiency Benchmark & Demonstration Factory and Cultivated Enterprise Practicing Carbon Dioxide Peaking and Carbon Neutrality Best”.



Leading Group on Carbon Neutrality

Office of Leading Group on Carbon Neutrality

Strategic Planning Group

Low-carbon Technology Group

Accounting Group for Carbon Emission Reduction

Carbon Assets and Finance Group

Low Carbon and Environmental Protection Group

> Organizational structure of the Leading Group on Carbon Neutrality

Case

Successful issuance of RMB 300,000,000 green bonds

As an important part of green finance, green bonds hold the key to achieving the national strategy of “carbon dioxide peaking and carbon neutrality”. In September 2022, the Company successfully issued RMB 300,000,000, three-year, green medium-term notes at a coupon rate of 2.85% amid the opportunity the era offered. Independently underwritten by Bank of China, it was the first bond issued by the Company within China over 5 years, representing a brand new attempt to realize green and low-carbon development. It can better support the green, sustainable socio-economic development and low-carbon transformation, and it also serves as an important initiative to implement the national strategy of “carbon dioxide peaking and carbon neutrality” and the green, low-carbon development concept of Ansteel Group.

Indicator	2020	2021	2022
Total amount of greenhouse gas emissions: direct (Scope 1) emissions (ton of carbon dioxide equivalent)	43,913,259	44,600,297	Our total amount and intensity of greenhouse gas emissions in 2022 will be disclosed after being audited by the Department of Ecology and Environment of Liaoning Province. At present, no audited carbon emission data are available for 2022. Therefore, this Report only discloses carbon emission data of the three bases in 2020 and 2021. As for carbon emission data in 2022, it is expected to be disclosed in the ESG report of the next year.
Total amount of greenhouse gas emissions: indirect (Scope 2) emissions of energy (ton of carbon dioxide equivalent)	6,183,158	6,283,858	
Greenhouse gas emission density (per ton steel)	1.89	1.9	

Cleaner production and operation

The Company pushed forward clean production in all respects and endeavored towards harmless emissions and clean energy, as part of its efforts to contribute to the structure optimization and clean energy substitution in the steel industry, and pioneer and lead low-carbon, clean steel.

Fresh air

To guard a blue sky and white clouds, the Company made efforts in terms of funding, daily control, special actions, governance and preplanning to control air pollution, improve air quality and keep air fresh on the basis of strict compliance with the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution.

Funding

Special financial support

- The Company completed the environmental acceptance of sintered activated carbon and other projects in the west area, and tried to obtain special funds for the air to guarantee air pollution control.

Control

Ultra-low emission

- The Company completed the following tasks: pre-assessment of ultra-low emission transformation, and establishment of a special promotion group and a regular meeting system for collaboratively pressing for progress.
- The Company proceeded with ultra-low emission transformation in an orderly manner, and approved and implemented 44 ultra-low emission projects with an investment amount of RMB 840 million.

Action

Blue sky action

- The Company tested exhaust gas from nearly 3,666 vehicles entering the factory, with no repeated black smoke emission found.
- The Company completed registration and exhaust gas testing for 162 sets of non-road mobile machinery.

Governance

Orderly governance of volatile organic compounds (VOCs)

- The Company detected 38,321 points of VOCs facilities in cold rolling mills and other units in respect of leakage, repaired leaks promptly, and built a query management platform for LDAR detection data to enable real-time data query.

Pre-planning

Modification and implementation of Emergency Plan for Heavy Pollution Weather

- The Company revised the *Emergency Plan for Heavy Pollution Weather* to redefine the emission reduction mode in the “heat-based production” method and include sintering and pelletizing in the mining area in its emission reduction management during heavy pollution weather.
- The Company strictly implemented the *Emergency Plan for Heavy Pollution*, and activated the *Emergency Plan for Heavy Pollution Weather* 7 times throughout the year.

Indictor	2020	2021	2022
Total emissions of nitrogen oxide (ton)	25,191.4	25,284.5	25,686.3
Total emissions of sulfur dioxide (ton)	9,252.4	9,070.4	8,237.9
Total emissions of particulate matters (ton)	12,101.7	11,248.7	11,195.4

Waste treatment

The Company increased investment in the treatment of hazardous, harmless and domestic wastes, and continued to promote clean manufacturing by treating wastes in a legal, precise and scientific manner.

Key performance in 2022

Its waste recycling rate hit **100**%.

Law-based waste treatment

- According to the latest national requirements, the Company included solid waste in the scope of emission permit management and was licensed to discharge pollution.
- It also invested RMB 4.64 million to entrust qualified organizations to disposal of hazardous waste in compliance with regulations.

Precise waste treatment

- The Company invested RMB 2,750,000 in a new hazardous waste storage project related to chemical technology,So as to achieve more standardized storage of hazardous waste.
- The Company pushed forward the classification of domestic wastes, invested more than RMB 300,000 to build and improve supporting facilities for domestic waste collection and classification, and organized all its staff to classify these wastes.

Science-based waste treatment

- To eliminate environmental risks that might arise from the transfer and disposal, the Company conducted a scientific appraisal, and made the best of its own industrial furnaces to dispose of hazardous waste.
- It also obtained the EIA approval for internal disposal of 4 kinds of hazardous waste, shifting disposal from externally to internally and signaling a new breakthrough of zero hazardous waste leaving the factory in 2022.

Indicator		2020	2021	2022
Packaging material	Total amount (10,000 ton)	7.05	7.3	7.2
	Density (ton/ton steel)	0.39	0.41	0.4
Hazardous waste	Total amount (10,000 ton)	0	0	0
	Density (ton/ton steel)	0	0	0
Harmless waste	Total amount (10,000 ton)	150,000	150,000	150,000
	Density (ton/ton steel)	0.0084	0.0084	0.0084

Case Tackling the challenge of hazardous solid waste treatment

Tar residue is a viscous solid waste generated in the coal coking production with adsorbed coal tar, which may have an impact on the environment if treated in a conventional method. The Coking Plant of Ansteel Group Chaoyang Iron & Steel worked with Ansteel Group Research Institute of Iron & Steel to develop the environmentally friendly technology of tar residue and build a tar residue centrifugal separating unit based on the scientific research project titled "R&D and Application of Source Reduction Technology for Coking Tar Residue". The unit can treat tar residue in an efficient and environmentally friendly way, effectively tackling the challenge of hazardous solid waste treatment and improving the level of comprehensive utilization of resources; as a result, the Coking Plant of Ansteel Group Chaoyang Iron & Steel can generate tar residue 3 tons less per day and separate 90.4% tar from tar residue, with more than RMB 1,600,000 in cost cut-down and benefit increase expected every year.



> The tar residue centrifugal separating unit is put into operation at the Coking Plant of Ansteel Group Chaoyang Iron & Steel

Clean energy

The Company coordinated the optimization of energy consumption mix by strengthening the use of green, clean energy, and laid out a new energy industry by increasing the proportion of applying solar energy, wind energy, hydrogen energy and other clean energies to spur a green, low-carbon steel industry. In 2022, 2.624 TWh of clean energy electricity was traded.

Key performance in 2022

2.624 TWh of clean energy electricity was traded by the Company

Where clean energy accounted for **37**%

Throughout the year, Bayuquan Branch of Angang Steel traded **540** GWh of clean energy electricity, and generated **14.7** GWh of wind power and a total of **116.12** GWh of power using clean energy.

Case Contributing to the optimization of energy mix

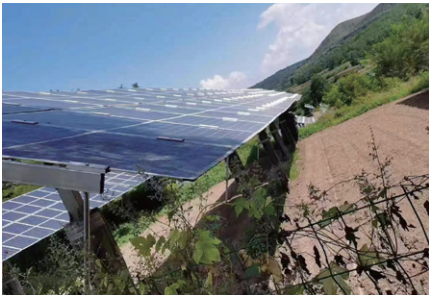
The Project of Guangdong Energy Group Co. , Ltd. Huizhou LNG Receiving Station is a key national oil and gas infrastructure project serving the socio-economic development and energy mix optimization in Guangdong-Hong Kong-Macao Greater Bay Area. To support the optimization of regional energy mix, the Company delivered a record-high volume of 9Ni steel in a single month, and managed to send Angang X7Ni9 steel plates to the construction site of the Project of CIMC Huizhou LNG Receiving Station in Guangdong-Hong Kong-Macao Greater Bay Area to ensure that the project met the construction schedule. This further contributed to the socio-economic development, energy mix optimization and ecological environment improvement in Guangdong-Hong Kong-Macao Greater Bay Area.



> Guangdong Energy Group Co. , Ltd. . Huizhou LNG receiving terminal project site

CaseEmpowering the development of photovoltaic industry

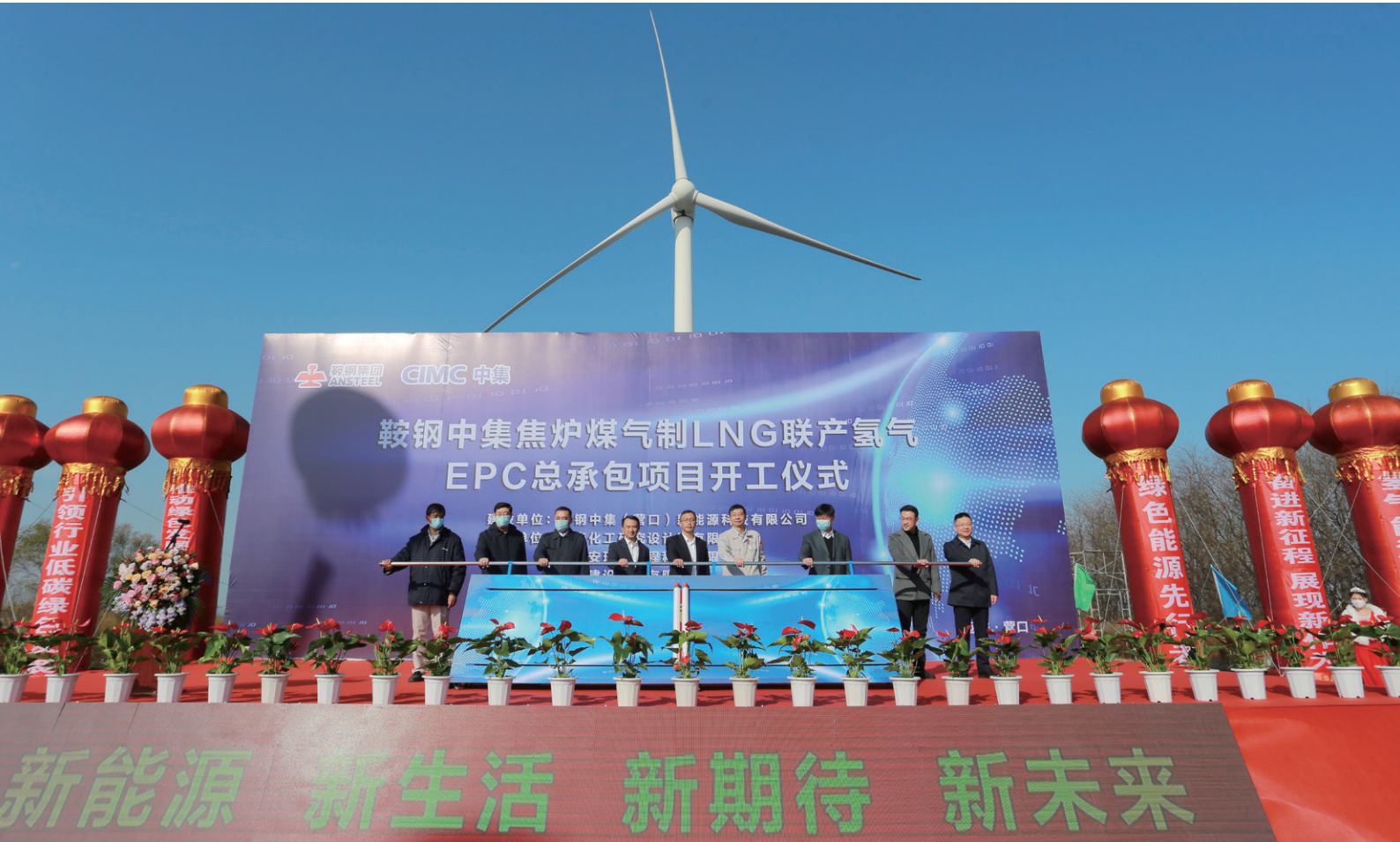
Photovoltaic industry is the representative of green energy. To fuel the development of clean energy, the Company kept following up the current situation of the photovoltaic industry and the national overall layout. The Company undertook the national key special tasks, raised its technical requirements for steel products from traditional aluminized zinc to galvanized aluminum-magnesium, industrialized patented achievements rapidly, and developed high-strength galvanized aluminum-magnesium products at a fast speed. These actions significantly reduced the cost of photovoltaic supporting brackets, and contributed to developing construction projects of photovoltaic power system as well as the sustainable development of the photovoltaic industry. In September 2022, the Company won the bids for the 300MW Photovoltaic Supporting Bracket Project of China Energy Engineering Investment Co., Ltd. in Anda City, Heilongjiang Province and the 1.5GW Photovoltaic Supporting Bracket Project of POWERCHINA in Urho District, Xinjiang Uygur Autonomous Region, empowering green energy by virtue of its edges.



> Photovoltaic supporting brackets

CaseHydrogen project commenced at Bayuquan Steel Branch

In November 2022, Angang CIMC (Yingkou) New Energy Technology Co., Ltd., a joint venture subordinated to Ansteel Energy Science and Technology Co., Ltd., commenced the construction of the Coke Oven Gas-based LNG and Hydrogen Co-production Project in the factory area of Bayuquan Steel Branch. The project, with a total investment of about RMB 600,000,000, will produce LNG and hydrogen from coke oven gas and converter gas as byproducts of Bayuquan Steel Branch of Angang Steel. It is expected to be put into operation in 2024, with an annual output of 125,000 tons of LNG and 24,000,000 m3 of hydrogen, which can reduce 470,000 tons of carbon dioxide, 174 tons of sulfur dioxide and 1,344 tons of nitrogen oxides per year, while the co-produced hydrogen can be used for hydrogen-powered cars. The project marks a solid step of Angang Steel towards an ecological chain of clean energy industry and a “green, new Ansteel”.



More efficient energy saving and consumption reduction

The Company strengthened the management of raw fuel, tapped the potential of energy saving and consumption reduction, advanced energy-saving technology reform and research, and made full use of water resources efficiently to maximize the reduction, conservation and reuse of resources.

Managing raw fuel

Driven by innovation, the Company strengthened the operational management of blast furnace processes, and optimized ore blending (including coal blending) to reduce the consumption of iron ore and other raw fuels and improve the efficiency of fuel use. 2022 saw a significant decrease in the index of blast furnace fuel ratio, and the best ever performances of steel material consumption in the converter of Anshan Base and iron ore consumption in Bayuquan Base.

Indicator	2022
Iron ore (kg/t)	1,658
Blast furnace fuel ratio (kg/t)	539.4
Steel material consumption for steelmaking (kg/t)	1,119

Saving as much as possible

The Company evaluated energy-saving management, implemented factory-level energy-saving projects, improved energy supervision modes, and promoted energy recovery, as part of its efforts to use energy efficiently and circularly.

Energy-saving management evaluation	Energy-saving project implementation
The Company carried out energy-saving evaluations on 21 projects and on processes of 6 manufacturing plants, and completed energy efficiency tests for 12 heating furnaces.	The Company implemented a total of 23 energy-saving projects, with a total investment of RMB 874.37 million. It is estimated that the energy conservation through technical innovation can reach 210,000 tons of standard coal.
Energy-saving supervision and inspection	Recovery
The Company inspected rational use of energy in each production line, and rectified all 360 problems found in the inspections in 2022. It also continuously optimized its production organization and arrangement to ensure rational and economical use of energy by production lines, and improved the ratio of peak-valley electricity consumption, saving a total of more than RMB 30,000,000 for planned purchase of electricity.	Its recovery level of secondary energy and waste heat & energy kept improving through science-based organization of gas balance and more operation and management of the power generation system. In 2022, secondary energy generation of the Company accounted for 58% of the total, 58,600 tons of potential coal utilized, and RMB 600,000,000 steam coal cost saved.

Key performance in 2022

Its comprehensive energy consumption per ton of steel was

564.4 kg standard coal/ton.

Its energy consumption per 10,000 yuan output value was

2.02 tons of standard coal equivalent/10,000 yuan.

	Indicator	2020	2021	2022
Energy	Total energy consumption (ton of standard coal)	15389490	15079108	15047774
	Density (ton/ton steel)	0.581	0.57	0.564

Using every drop of water to the fullest

The Company headquarters combined innovative recycling technology, reduced use, depressurized operation, waste water reuse, diversified mixing and other measures to reduce the total amount of water consumption, improve the efficiency of water use and relieve the water source pressure. In 2022, its target and actual values of total water consumption were 86,700,000 tons and 85,900,493 tons respectively, and its target and actual values of water consumption were 3.26 tons/ton of steel, and 3.23 tons/ton of steel respectively, which indicated that it over-fulfilled the goal of water consumption. Moreover the Company had 7,284 t/h of water withdrawal per ton, 109t/h down on the basis of the previous year, the best performance ever.

Key performance in 2022

98.6% water was reused across the Company headquarters.

Fresh water

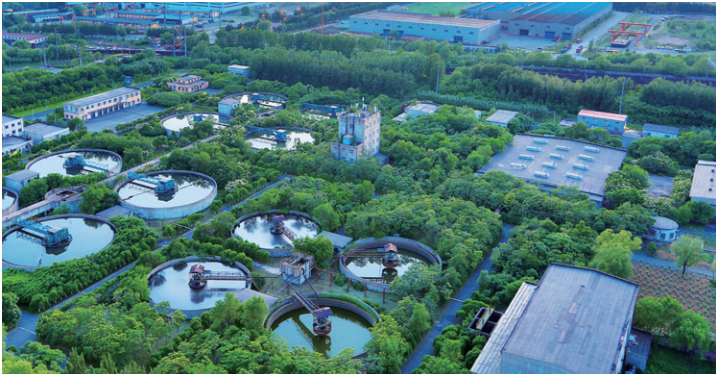
- The Company increased the water withdrawal of Dahuofang Water Transmission Project and reduced the groundwater withdrawal year by year according to resources utilization requirements of replacing underground water with surface water. In 2022, the groundwater withdrawal of Angang Steel headquarters plummeted by 29.65% on a year-over-year basis, and by 44.75% compared with 2020.
- The Company implemented the optimization and reduction reform of the water supply network of fresh water system and the optimized operation scheme for the pipeline network, streamlined the structure of the pipeline network, and balanced the pressure of the pipeline network to further reduce the water loss of the pipeline network.

Sewage

- The Company approved and implemented the recycling and rainwater & sewage diversion project of Angang Chemical Technology Co., Ltd. and the stilling pool renovation project of flood control pumping station in the west area of energy management & control, with 3 projects including gas water seal and water collection project of Energy and Environment Management Center completed as scheduled and accepted.
- The Company pushed forward the resource utilization of sewage for efficient operation of the Xidagou and Beidagou sewage treatment systems. In 2022, about 30,000,000 m3 waste water was reclaimed inside, and 98.6% water was reused across the Company headquarters.

Case Xidagou Wastewater Treatment Center turns waste into treasure

Xidagou, Angang Steel's Energy and Environment Management Center, is the end point of industrial and domestic wastewater, and also starting point of turning waste into treasure in the Great Cycle System. The three sets of sewage treatment systems featuring advanced technology and complete process in Xidagou operation area transform industrial and domestic wastewater from coking and ironmaking into water of different levels of quality using equipment and means such as physical chemistry, biochemistry, and "ultra-filtration + reverse osmosis" double membrane water treatment technology, helping reuse of wastewater.



> Desalination and reverse osmosis units in Xidagou, Angang Steel's Energy and Environment Management Center

Indicator	2020	2021	2022
Total water consumption (ton)	87,321,043	86,729,215	85,900,493
Water consumption per ton of steel (ton/ton of steel)	3.3	3.28	3.23
Water reuse rate (%)	98.4	98.43	98.6
COD (ton)	75.89	73.77	0
Ammonia nitrogen (ton)	4.44	8.43	0

Note: Statistical data on total water consumption and water consumption per ton of steel are made as per the new standard, which are not consistent with historical calculations.

More harmonious ecological environment

According to the Overall Planning Scheme for Forest-style Green Ecological Plant, the Company improved greening landscape of the Central Avenue, Linai Avenue and other ring roads, and increased the greening rate of production plants, such as the Ironmaking Plant and the Coking Plant, by organizing the planting of protection forests in Lingshan stock yard. In 2022, Angang Steel (Anshan Base) planted 16,800 trees, 1,224,600 shrubs, 55,000 vines, and 15,000 m² of lawn.



> Virescence of wisdom ironmaking center

Case Three seasons with flowers and four seasons with scenery

Committed to a garden factory, Bayuquan Branch of the Company simulated regional natural community landscape based on the layout and greening characteristics of the factory as well as ecology and landscape principles, and combined evergreen trees with deciduous trees, slow-growing trees with fast-growing trees, and trees with shrubs and grass to increase green biomass while forming well-distributed natural community landscape, achieving "three seasons with flowers and four seasons with scenery". The move not only meets the functional needs of the factory, but also underscores the role of landscape beautification and ecological restoration.





Common prosperity of the steel industry and the society

Opportunities and challenges

As a leader in the steel industry, it is urgent for Angang Steel to move faster toward self-reliance in science and technology and a higher level of digitalization. Besides, it should work with its partners to build a solid “great wall” of high technology in steel engineering, facilitating transformation and upgrading of this industry.

Our actions

The Company supported the country's most fundamental interests, provided its employees with an equal, diversified, inclusive and vast development platform, and brought high-quality products and services to its customers. Moreover, it made joint efforts with its partners to build an industrial chain featuring sustainable development, gathered the best resources to build an innovative Ansteel with self-reliance in science and technology, and focused on accelerating a Smart Ansteel with intelligent management and manufacturing, contributing its wisdom and strength for reinvigorating the country.

Our achievements

The coverage of training to employees maintained **100%**.

The investment in research & development reached RMB **2,621.45** million.

The fund for offering targeted assistance mounted up to RMB **16.3993** million.

Vaster development platform

The Company respected, trusted and cared about its employees. It offered a fair and broad platform and an employee assistance program to raise their sense of fulfillment, happiness and security. In this sense, the Company and its employees made progress and shared success together.

Basic rights and interests

The Company strictly abided by China's Labor Law, Labor Contract Law and other relevant laws and regulations, as well as its regulations in the Measures for Management of Labor Contract. In addition, it built an active, inclusive and healthy workplace, provided each employee with equal employment opportunities and guaranteed employee's lawful rights and interests.

Key performance in 2022

The Company had 131 new employees.

Equal employment opportunity

The Company insisted on the equal employment policy and the principle of anti-discrimination, clarified its and employees' rights and obligations, and completely prohibited the employment of children and forced labor. It also implemented the Special Collective Contracts for Protecting Female Employees' Rights, strictly enforced the Regulations Concerning the Labor Protection of Female Staff and Workers, and provided equal chances for both men and women in terms of equal pay for equal work, vocational education, technical training, promotion, and participation in democratic management of enterprises. In 2022, its labor contract signing rate reached 100%.

Salary and welfare

Employees were provided with a competitive compensation which was linked with enterprise benefits and adapted to the market standard. Long and medium-term incentives were offered for young and talented employees, especially key, core talents, to encourage them to create values through innovation.

The Company also implemented the enterprise annuity plan, purchased the "enterprise aid liability insurance", and established a four-in-one medical security system consisting of the "basic medical insurance, excess medical insurance, corporate's supplementary medical insurance, and medical relief funds" for which it paid the insurance premiums in full amount and on schedule. In addition, employees had access to the annual vacation with pay, and family reunion, marriage & funeral and maternity leaves in accordance with the law and other benefits. In 2022, its coverage of social insurance reached 100%.

Democratic management

The Company continued to improve the democratic management system with the meeting of workers' representative and the labor union as the basic forms, and communicate with employees in way of the open day for democratic management, regular symposiums between officials and the public, proposals from workers' representatives, online consultation and field visits by leaders. It also extensively collected and confirmed common needs of employees and pain points needing prompt solutions, built an all-round response system to solve the most pressing difficulties of high concern to employees, and encouraged employees to offer advice and suggestions and enhance their awareness of their status as masters of the Company. In 2022, 9 proposals by workers' representative were collected with the rate of feedback being 100%.

Health and safety

The Company thoroughly carries out the Labor Law of the People's Republic of China, Law of the People's Republic of China on Work Safety, Law of the People's Republic of China on the Prevention and Control of Occupational Diseases, Trade Union Law of the People's Republic of China, and other relevant laws and regulations, improved the health and safety management system and designated the Safety Management Department as the manager of health and safety to prevent hazards of occupational health and safety, and enhanced employees' awareness of safety and ability to protect themselves. In 2022, 100% of its employees took physical examination provided by the Company.



Key performance in 2022

The Company invested RMB 163.595 million in safety and health.	Its coverage of safety training to employees reached 100%.	Its number of days off due to work injuries was 0.	Its number of deaths due to work is 0.
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Diversification and inclusiveness

The Company attracted outstanding persons based on the fair, inclusive and diversified principles of employment, and cared and helped employees in need based on their common and personalized demands, ensuring all its employees work and live happily in a diversified and inclusive workplace.

Creating a diversified talent team

The Company insisted on implementing diversified employment policies, building a diversified talent team in a reasonable layout, and creating a diversified workplace for employees.

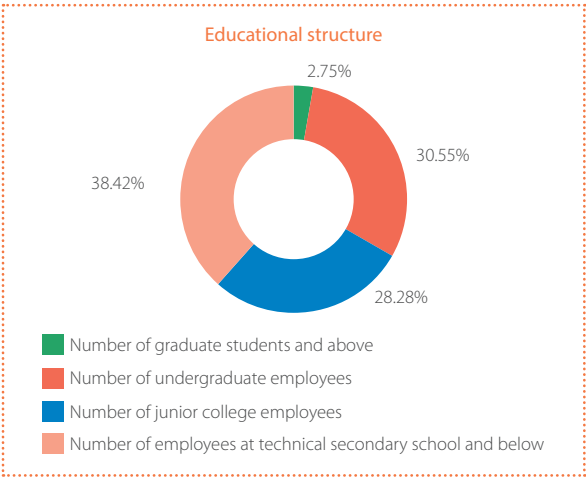
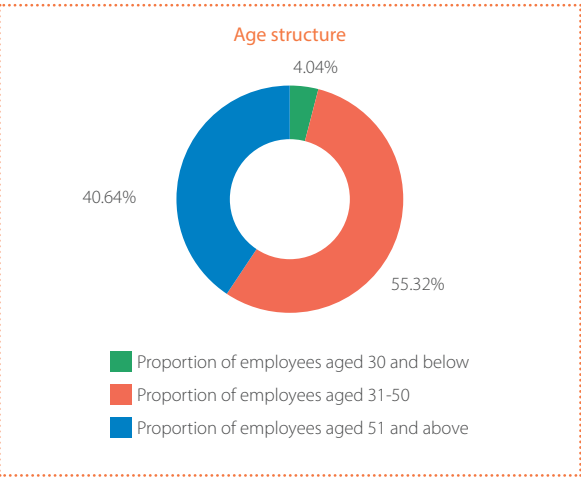
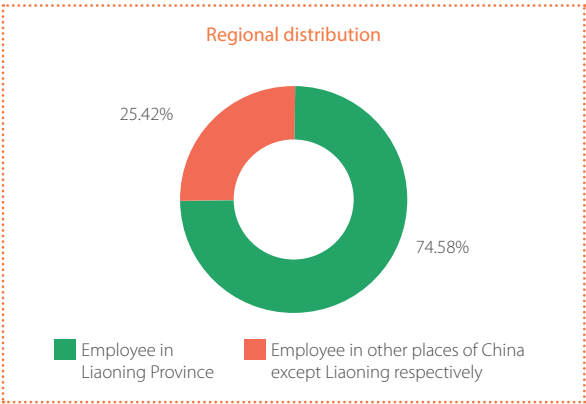
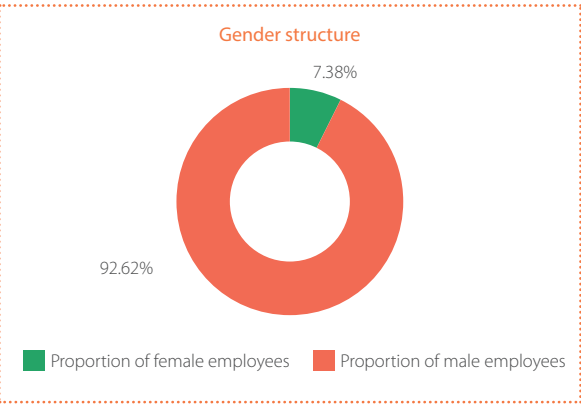
Key performance in 2022

The Company had a proportion of female managers of **0.63%**.

Its employee satisfaction score was **4.3** points (5-point scale).

Its employee turnover rate was **1.08%**

Employee turnover rate by gender		Employee turnover rate by age			Employee turnover rate by region	
Female employees	Male employees	30 and below	31-50	51 and above	Employee in Liaoning Province	Employee in other places of China except Liaoning respectively
0.30%	0.78%	0.30%	0.62%	0.16%	0.55%	0.53%

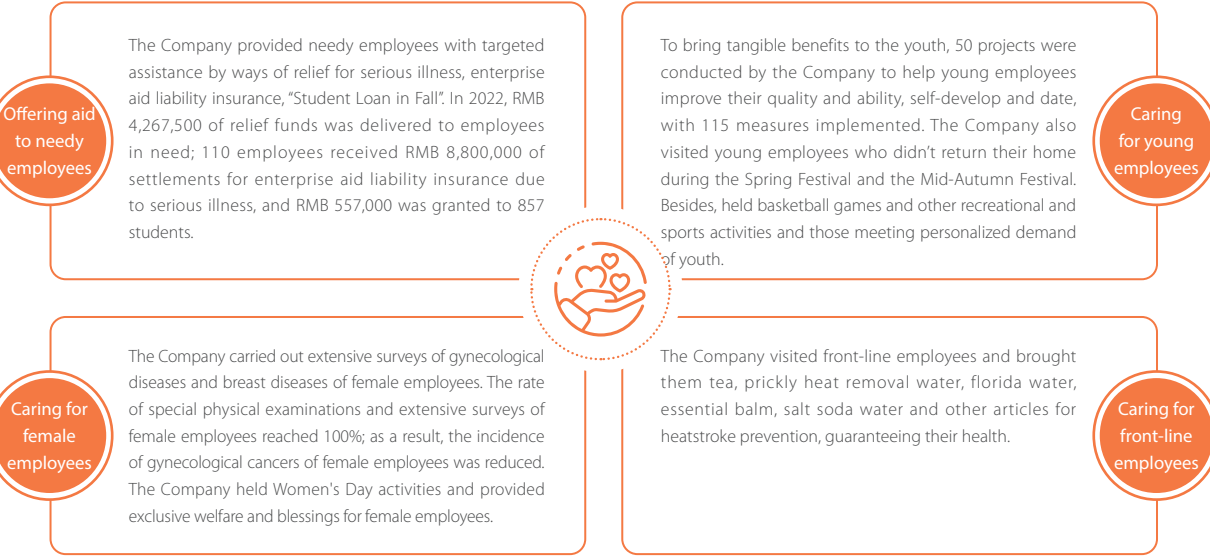


Caring for employees

The Company improved the long-term mechanism of “Bringing Tangible Benefits to Employees”. To meet their actual demand, it renovated places including operation rooms, rest rooms, toilets, canteens, bathing pools, and conducted a variety of activities to meet spiritual needs of employees. In 2022, 75 major welfare programs at the company level were completed, gaining 100% satisfaction from employees.

CSR Honors and Awards

◎ The Color Coating Branch Factory under the Cold Rolling Mill of Angang Steel won the title of “Worker’s Home Model in Liaoning Province”.



> Employee basketball match themed “Celebrating 20th CPC National Congress with Sports”



> “Women Cup” volleyball match



> Six-person football match themed “Celebrating 20th CPC National Congress and Forging Ahead on the New Journey”



> A factory activity celebrating the Spring Festival

Vast development platform

The Company continued to improve the talent development plan, implement the suggestions on cultivating young leaders and building a talent team and provide more opportunities for development of employees, so that they can do their part to the greatest extent.

Key performance in 2022

Its coverage of training to employees was **100%**.

Its per capita training time of employees was **65.9** hours.

Its per capita training time of senior managers was **110** hours.

Its per capita training time of middle-level managers was **90** hours.

Its per capita training time of ordinary employees was **48** hours.

Its per capita training time of female employees was **65.9** hours.

Its per capita training time of male employees was **65.9** hours.



> Liu Tie, an employee of Steelmaking Plant was included in the second "Craftsmen of the Nation" support plan of central SOEs.

Meticulous steelmaking

The Company fostered the strength of its brand and put quality and innovation-driven development first. It improved its brand values and influence with first-rate products and considerate services and built a Smart Ansteel and an Innovative Ansteel with intelligent technologies and technical innovations. It is committed to building itself into a world first-class enterprise of outstanding brand, and leading the steel industry to achieve high-quality development.

Excellent product quality

Quality is the cornerstone of a brand and life of an enterprise. The Company strictly complied with national laws and regulations including the *Product Quality Law of the People's Republic of China*, continued to improve its quality management system and eliminated quality risks by ways of risk evaluation, quality assessment, special quality projects and continuous improvement, thus raising product quality.



Key performance in 2022

The Company had no sold or delivered products to be recovered due to safety and health considerations (percentage: **0**%).

It had no violation concerning health and safety of products and services (number of violations: **0**).



CSR Honors and Awards

- ◎ Ansteel Group Chaoyang Iron & Steel was honored as an outstanding brand among China's iron and steel enterprises in 2022.
- ◎ Bayuquan Base was named as an excellent brand among China's iron and steel enterprises in 2022.
- ◎ Steel for heavy rail and nuclear power was honored the most competitive product in China's metallurgical industry in 2022.
- ◎ Variety capacity of medium-thick plates ranked the first in China.



> Steel for heavy rail

Case Guaranteeing the construction of national infrastructure with quality products

High-strength, quality structural steel is an important guarantee for construction of major infrastructure in China. In 2022, Angang Steel won the bid of PipeChina regarding nearly 70,000 tons of X80M pipeline steel for Nantong-Luzhi road section of China-Russian East Route (Yongqing-Shanghai) natural gas pipeline project, assisting the construction of this long-distance pipeline project with the largest pipe diameter and wall thickness (32.1×φ1422). It also supplied 890 tons of high-grade color-coated sheets with greater film thickness for Chongqing Jiangbei International Airport project, which raised the status of the Airport, improved the brand value and influence of the products, and further guaranteed the construction of infrastructure in China.

Considerate customer services

The Company was customer-oriented. It insisted on optimizing its customer service system and communicating with customers to provide them with the best service and meet their diversified and personalized demands, building and boosting its brand image.

Service system

The Company established a one-stop three-level service system to accurately identify and efficiently solve customers' problems in all respects, providing customers with targeted and personalized service and enhancing customer service experience. In 2022, the Company launched the "Year of Customer Service" activity to optimize the structure of customer groups, technical marketing and customer experience, making this system more perfect and efficient.

Improving the customer service system

- ◆ The Company built a service system led by key account managers, with a structure composed of front, middle and back offices plus the command center and the steel processing center as the main part to realize one-stop service.
- ◆ The Company perfected the hierarchical management of customers, knew more about customers by means of information technology, optimized the value model, and clarified the distribution of key customers. It also built a "1 + 2 + △" customer management system, and formulated differentiated service strategies from five aspects of QCDDS for different types of customers to improve service standards.

Efficiently solving customers' problems

- ◆ The Company established a management process of classifying customer needs, solving problems at different levels and clarifying responsibilities, to accurately identify customer needs, and efficiently solve problems of key customers.
- ◆ The Company developed an online intelligent service platform to handle objections in a closed loop from user complaint acceptance to internal rectification, and further extended this platform to key users, realizing real-time inquiry of objection-related information of online users in different places and processing of related objections, and providing customers with an efficient, intelligent, new service mode.

Optimizing customer service experience

- ◆ The Company managed contracts throughout their life cycle and shortened the delivery period of contracts. In 2022, its contract delivery cycle was shortened from 40 days in the first quarter to 31.36 days in the fourth quarter, and the product delivery experience continued to improve.
- ◆ The Company made great efforts to improve the efficiency of objection handling and shortened the processing period. In 2022, its average time for handling quality objections was 8.4 days, which was 1.6 days less than target for Year of Customer Service, and its integrated logistics cycle was 1.65 days shorter than that in last year.



CSR Honors and Awards

- ◎ The Company was selected as PipeChina's supplier of steel plate frame in 2022.
- ◎ The Company won the award of BYD "Good Strategic Partner" and CSSC "Golden Supplier".
- ◎ The Company provided customers with the lightweight technical solution of "Angang Auto Steel", and won the "Win-win Cooperation Award" of Jianghuai Automobile in 2022.



> The Company won the award of BYD "Good Strategic Partner".



> The Company won the "Win-win Cooperation Award" of Jianghuai Automobile in 2022.

Privacy safety

The Company strictly complied with national laws and regulations including the *Personal Information Protection Law of the People's Republic*, and kept customer information confidential and managed. It revised and used the *Methods for Authorization Management of Integrated Smart Operation Management & Control System* to manage archives, technical protocols and property and other information of customers at different levels as per granted permissions. It was to ensure that no information would be disclosed to any third party without the consent of customers. In 2022, no privacy of its customers was disclosed.

Responsible marketing

The Company strictly abided by the laws and regulations such as the *Law of the People's Republic of China on the Protection of the Rights and Interests of Consumers*, *Advertising Law of the People's Republic of China*, and disclosed information about the product technology, quality and functions truly and properly. It also strengthened publicity and education, raised employees' brand awareness, and provided customers with true product information to meet their demands.

Deepening intelligent manufacturing

The Company speeded up the development of a Smart Ansteel, and promoted deep integration of the Internet, big data, artificial intelligence and steel value chain. It created an integrated smart operation management & control system, it dedicated itself to building a set of IT-related solutions of "Ansteel features" to the steel business.

In 2022, the Intelligent Iron Smelting Center was put into operation, indicating that the world largest "integrated intelligent iron smelting center for pre-iron-making operation" that integrated sintering, pelletizing, coking and blast furnace processes, production control, equipment monitoring, command and decision-making and industrial big data platform, took the lead in achieving technological breakthrough and being built and applied in the Company. As an intelligent production and operation platform integrating data acquisition, intelligent video, intelligent control, data visualization and intelligent analysis and decision-making systems in the blast furnace area, the Center not only played an important role in improving the quality and efficiency of the iron smelting system, reducing costs, and ensuring safe production, but also laid a solid foundation for a new picture and breakthrough of a Smart Ansteel.



> Iron smelting center

Key performance in 2022

The Company received **1,430** complaints about its products and service.

Its ratio of complaints settled was **95** %.

Customer satisfaction **93** points

It received **0** complaint due to customer information disclosure.

Key performance in 2022

Integrated control platform for intelligent operation developed **37** sets of tools for daily cost tracking.

It implemented **62** projects for centralized control of blast furnaces under operation.

It renovated **17** main production lines with intelligent approaches.



CSR Honors and Awards

- 17 intelligent manufacturing achievements of the Company won titles of honor at national and provincial levels.
- 7 projects by the Company, including the *Application of Industrial Big Data in Steel Manufacturing Process*, were awarded as pilot projects of the Ministry of Industry and Information Technology of the People's Republic of China.
- Angang Steel Company Limited was awarded a model of intelligent manufacturing by the Ministry of Industry and Information Technology of the People's Republic of China.
- The "Production Operation - Dynamic Optimization of Process" scenario of Ansteel Group Chaoyang Iron & Steel was selected as the National Excellent Scenario of Intelligent Manufacturing.



> Intelligent production in Ansteel Group Chaoyang Iron & Steel

Case The Company built 5G+ Intelligent Steelmaking System to realize "Steelmaking with One Click"

Angang Steel, together with China Mobile and ZTE, has built the 5G+ Intelligent Steelmaking System with the cloud edge architecture of the 5G Industrial Network in the 4.9 GHz band. The system takes the "Fine Steel Cloud" of Ansteel Information Industry Co., Ltd. as the cloud platform, the data centralized control platform of Steelmaking Plant of Angang Steel Co., Ltd. as the edge server, and the converter sonar, crane, camera, etc. of Production Line 5# of the No. 3 Branch of Steelmaking Plant as the terminal equipment. It spans the three major technical fields, i.e., 5G communication technology, cloud computing technology and steel and metallurgical process control. It is the first industrial application of 5G industrial network communication technology in the 4.9 GHz band. It will accelerate the integration and application of 5G in the industrial field and promote the transformation, upgrading and high-quality development of the steel industry.



> Intelligent steelmaking in No. 3 Branch of Steelmaking Plant

Case The Company becomes a member of the working group of key laboratories in the field of industrial big data analysis and integrated application

In July 2022, the Company became a member of the working group of key laboratories in the field of industrial big data analysis and integrated application; therefore, it managed work of four working teams of data governance, industrial intelligence, digital supply chain and digital twinning. It ranked first in the list of candidates, indicating that its digital construction level took a leading position in the field of industrial big data development and application. Taking this as an opportunity, the Company will further carry out joint research with relevant enterprises, universities, research institutes and other units to accelerate the application of industrial big data and solve the difficulties and key problems of enterprise in the process of transformation and upgrading.

Case With the application of the smart melted iron transportation system, Angang Steel enters into an "intelligent era" of melted iron transportation

In August 2022, the intelligent melted iron transportation system of the Bayuquan Base was officially put into trial operation. The system aims at realizing intelligent iron-steel balance. It is equipped with core functions such as intelligent scheduling of molten iron and locomotives, automatic path planning and arrangement, automatic position tracking and data management based on technologies such as big data and intelligent algorithms, for the purpose of centralized control management of position and state information of molten iron transportation in the whole process. The application marks a deep integration of artificial intelligence and intelligent technology in industrial scenes, and an innovative practice of driverless technology in industrial scenes, setting a benchmark for the high-quality development of traditional industries, the transformation and upgrading of industries, and building of an intelligent steel manufacturing ecosystem. Its operation will promote energy conservation and emission reduction, improve the transportation efficiency of molten iron and labor productivity, and enhance product competitiveness.

Taking the lead in innovative development

The Company insisted on innovation-driven development. Specifically, it optimized the innovation systems & mechanisms, fostered innovative personnel, and continuously enhanced innovation management. Moreover, it actively participated in national key technology and material projects and realized first launch and application of relevant technologies and materials, demonstrating the strength of Ansteel brand.

Innovating systems & mechanisms

- ◆ The Company developed the *Tasks for Optimizing Scientific & Technological Innovation and Enhancing Innovation Ability*, and the *Action Plan for Construction of “Four Innovation Platforms”*, and enhanced capability of technology R&D and innovation.

In 2022, RMB **1.65** billion was cut down in terms of for technology cost reduction and efficiency increase.

Cultivating innovative personnel

- ◆ The Company held more academic exchanges and innovation competitions, set up a platform for the management of science and technology associations, and cultivated innovative personnel, to improve its innovation ability and enhance the innovation efficiency of all its employees.

In 2022, the Company released the second version of the Science and Technology Excellence Plan, with **21** leaders appointed.

Creating innovative platforms

- ◆ The Company created an enterprise-school-institute cooperation platform, and signed 13 technical development contracts with the Northeast University, Dalian University of Technology and other universities. It also set up and led the China Enterprise-school-institute Alliance in Marine Engineering Steel, and built a laboratory with the Chinese Academy of Agricultural Mechanization Sciences, contributing to the agricultural development of China.
- ◆ By creating key technology R&D projects and platforms, and further promoting the factory-research institute collaboration, the Company made breakthroughs on 111 technologies. Targeting the technical problems faced by enterprises, the Company collected 50 post-doctoral research projects from experts, industry leaders and technical leaders in different fields. It advanced 111 employee innovation projects, set up 7 employee innovation workshops at company level, and produced RMB 87 million of income by employees through their innovation projects.

Making more innovative achievements

- ◆ The research on high-end materials, green and low-carbon processes and technologies was advanced by the Company, and its 3 national projects including the research and production of high-strength plates for containment were completed and accepted.
- ◆ 4 products including new steels for bridge were firstly launched by the Company across the globe, and 4 technologies including the world-first spiral, electromagnetic stirring device with single-winding took the lead in the world.
- ◆ Super-extra welding energy steel for marine deck plates and P690QL2 for liquefied CO₂ transport ships of the Company passed classification society certifications of many countries, reaching international advanced level.

Participating in the formulation and revision of standards

- ◆ The Company completed the DIS draft of ISO international standard – Steel – Structural Steels – Part 5: *Technical Delivery Conditions for Structural Steels with Improved Atmospheric Corrosion Resistance*.
- ◆ The Company completed the CD draft of ISO international standard – *Hot Rolled Longitudinally Profiled Steel Plate*.
- ◆ The Company developed and revised 20 standards at national, industrial and association levels including *Continuously Cold Rolled High Strength Steel Sheet and Strip for Automobile – Medium Mn Steels*.

Key performance in 2022

The Company invested **2,621.45** million in R&D, accounting for 2% of main business income.

The Company had **3,558** proprietary property rights.

The Company obtained licensing of **567** new patents.

The Company obtained **1** international innovation patent according to *Paris Convention*.

The Company applied for **5** PCT patents.

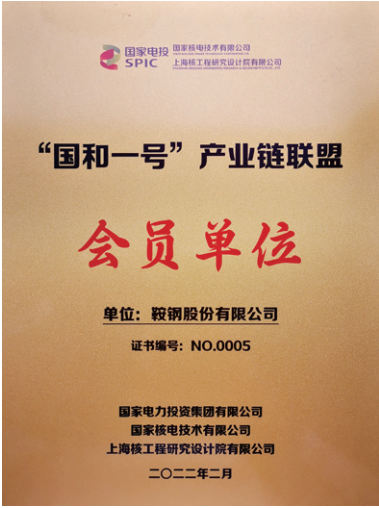


CSR Honors and Awards

- ◎ The Company's project - *Low CO₂ Emission Blast Furnace Charge Solution based on Low Basicity High Silicon Pellets and its Application* won the Excellence in Low-carbon Steel Production of 13th Steelie Awards.
- ◎ Its invention patent – *Method for Preparing High-strength Coke for Ironmaking by Using Chemical Waste* won the 23rd China Patent Award.
- ◎ Its 2 innovations of “Exploration and Practice of Full-scale Cooperative Management in State-owned Enterprises” won the second prize.
- ◎ The Company was honored as Enterprise with National Intellectual Property Advantage, and its patent innovation index ranked third in the national steel industry for two consecutive years.
- ◎ Its Management and Practice of Scientific and Technological Innovation in Large Steel Enterprises Based on Leading Plan won the first prize of Liaoning Province Annual Award of Enterprise Management Innovation Achievement.

Case The Company makes great achievements in steel materials for the nuclear industry

Thanks to its technological innovations and strengths in production equipment of nuclear steel, the Company closely cooperated with State Nuclear Power Technology Corporation, and made a large number of innovative achievements in the field of nuclear steel. To be specific, it has developed four series of nuclear steel products, including steel for nuclear reactor containment, steel for key equipment in the nuclear island, equipment in the conventional island, nuclear stainless steel and heterogeneous composite steel. Among them, SA-738Gr. B steel for nuclear reactor containment was introduced, researched and re-innovated, and its maximum thickness exceeded the upper limit requirements of ASME standard. It was applied to the construction of “Guohe One” CAP1400 steel containment, realizing the whole reactor supply of Unit 1 and contributing to the manufacturing of major nuclear power projects in China. In 2022, the Company became the only steel enterprise in the “Guohe One” Industrial Chain Alliance by virtue of its achievements and technological innovation capability in the field of nuclear steel. The Company will take this opportunity to fully support the development of the “Guohe One” Industrial Chain Alliance, work to become a new generation of nuclear steel standard setter and advanced material manufacturer, and contribute to realizing the goal of “reinvigorating the country with steel!”



> Angang Steel became a member of the “Guohe One” Industrial Chain Alliance.

More efficient industrial cooperation

The Company promoted the building of a responsible supply chain based on the principle of transparent and green procurement. It enhanced its IT-related ability to form a comprehensive steel logistic system, and dedicated itself to building an intelligent biological industry chain with higher quality and efficiency. By cooperation with other industries, it aimed to create the maximum value.

Responsible supply chain

The Company prepared the supplier management system, audited suppliers' qualifications according to standards including environmental and social ones and classified these suppliers accordingly. It also managed supplier admission, rating and withdrawal and other relevant affairs dynamically, and implemented IT-based procurement in a transparent and green way so that the responsible supply chain was formed with fair, transparent and efficient management.

Supplier management

Key performance in 2022

The Company had a total of 2,303 suppliers.

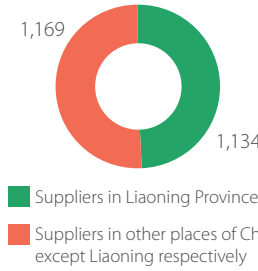


Responsible procurement

Key performance in 2022

Its local purchase accounted for 49.24%.

* Local purchase refers to products / services provided by suppliers within Liaoning Province.



Transparent procurement

- The Company set the goal of establishing a "transparent, cost-reducing, safe and efficient" purchasing management system, implemented the measure of purchase through bidding, and formed a stable purchase relationship with the key suppliers with a stable production and shipment ability and a sound quality assurance system in the industry.
- The Company entered into an integrity agreement with suppliers to oppose corruption, monopoly and other unfair competition behaviors, took strict measures for punishments of adverse events, and supervised and urged suppliers to abide by laws and regulations.

Green procurement

- The Company purchased low-sulfur and green raw materials that met the standards, and required suppliers to deliver goods with eco-friendly vehicles: new energy vehicles or those meeting the Stage V emission standards or above, so as to reduce pollutant emissions during transportation.

Smart procurement

- The Company actively strengthened the company management and expanded the application of information technology. It collected original materials, finished the preparation of static data about system revision, supplier information, material code, component and pricing rules, etc., and ensured the stable operation of the purchasing management system. It also guaranteed the smooth functions of the whole process from the requirement plan to purchase orders, invoices, reimbursement and payment.

Smart logistics

Key performance in 2022

The Company spent 336.6 yuan/ton on logistics costs per ton of materials, a year-on-year decrease of 16.7 yuan/ton.

The Company deeply integrated the information technology and traditional logistics, and created an efficient logistics development model to provide smart logistics service for the modernized production of steel enterprises.

In 2022, in order to achieve the goal of "reducing costs and improving efficiency in the first leg of logistics and increasing service value in the second leg of logistics", multiple departments of the Company cooperated in the logistics business, formed systematic solutions, defined 5 business rules, and met 10 new requirements of the logistics system. The efforts helped relieve the pressure effectively on port storage at the port of departure and improve the turnover rate of logistics at ports.

Case Angang Steel launches the Unmanned Intelligent Storage System of Smart & Connection

In 2022, the unmanned intelligent storage system of Smart & Connection was put into operation in the warehouses of finished products and raw materials of the color coating branch factory of the Company. The work of collecting and feeding raw steel coils, loading finished steel into warehouses, packaging, stacking, loading and shipping, etc., which was completed manually in the past, is now automatically completed by unmanned vehicles in an intelligent, precise and efficient way, improving the level of production organization and management.



> Color Coating Branch Factory under the Cold Rolling Mill

More harmonious community development

The Company devoted itself to rural revitalization and charity, encouraged its employees to fulfil responsibilities of Chinese central State-owned enterprises in their work, and did its part in building a better society.

Contributing to the harmonious development of villages

The Company continuously advanced rural revitalization, and insisted on the principle that “officials continue to fulfil their responsibilities based on policies of poverty alleviation, provide assistance and supervise the work process even if the village has been lifted out of poverty”. It also continued to promote the paired assistance. Besides, it made continuous efforts in industrial revitalization and personnel cultivation, promoted the effective connection between the achievements of poverty alleviation and rural revitalization, thus turning poor villages accepting assistance into sources of economic growth, and leading villagers to pursue sustainable prosperity.

Promoting industrial revitalization

- ◆ The Company attracted RMB 60.21 million of funds for Tajik Autonomous County of Taxkorgan, underpinning industrial development financially.
- ◆ The Company built a photovoltaic power station for Shangtao Village, Chaoyang City, increasing the collective income of the village.
- ◆ The Company invested RMB 8.952 million in purchasing 500 Simmental bulls, and completed the industrial breeding project at the relocated place of Tajik Abati Town, benefiting 16,593 peasants in 4,045 households.
- ◆ The Company supervised the quality of products produced in areas out of poverty, and reviewed the qualifications of 17 suppliers in Tajik Autonomous County of Taxkorgan, Panzhou, Jianchang, Xiuyan Manchu Autonomous County, Tai'an and other places, and licenses of food in 137 varieties. It also helped the sales of those products through live broadcast on its own e-commerce platform Delin and the e-commerce platform of central state-owned enterprises for helping the sales of those products. In 2022, RMB 18,502,300 was used to purchase those products.

Facilitating personnel cultivation

- ◆ The Company developed a personnel exchange and training plan, and provided 7 training courses in 3 categories, i.e., characteristic planting, basic management and professional skills, where 1,269 persons including community officials, leaders of rural revitalization and technicians participated.

Contributing to cultural revitalization

- ◆ The Company invested RMB 3.02 million in building the patriotism education halls and Chinese classics classrooms in primary and secondary schools of Taxkorgan Tajik Autonomous County, and achieved the full coverage of the Culture Nourishing Xinjiang Program in all schools of the county, benefiting 9,406 students and 972 teachers here.

Put great efforts to realize ecological revitalization

- ◆ The Company invested RMB 599,000 in renovating toilets in Postbandir Village, Bandir Township, rebuilt and repaired 49 toilets, and built 1 new village-level septic tank to properly treat the feces and improve the living environment.

Working hard for organizational revitalization

- ◆ The Company invested RMB 800,000 to repair the “centralized accommodation” station for the officials resident in Xinjiang, and care for the life of these officials. It also dispatched officials with good political quality, solid work style, strong comprehensive ability and rich management experience to achieve rural revitalization in the assisted areas and help build rural grass-roots Party organizations.

Supplying assistance to improve the people's livelihood

- ◆ The Company invested assistance funds in repairing farmers’ and herdsmen’s houses in Taxkorgan Tajik Autonomous County, purchasing medical equipment, and repairing vegetable greenhouses to improve the life quality of residents in the assisted area.



CSR Honors and Awards

© In 2022, the Company was praised by the Party committee of Tajik Autonomous County of Taxkorgan for its contributions to poverty alleviation in the local places.



> Color Coating Branch Factory under the Cold Rolling Mill

Conducting public charity activities

The Company was committed to the socialist cause and building its volunteer brand. It mobilized and supported employees to conduct voluntary activities in such fields as plant housekeeping, social welfare undertakings, practicing the spirit of Lei Feng in the new era and showing the beauty of giving from its employees. In 2022, the Company held the activity of “following the lead of Guo Mingyi to learn from Lei Feng”, with 6,992 participators engaged in 202 volunteer projects.

Key performance in 2022

The Company invested RMB **758,800** in charity events.

The volunteers from Company did their part in activities for **12,907** times.

The Company provided volunteer services for **13,307.5** hours.

The Company had **3,508** volunteers.

Case Guo Mingyi Volunteer Team of Coking Plant is honored as the best volunteer.

Guo Mingyi Volunteer Team of Angang Steel Coking Plant was founded in 2011. During the past 11 years from 2011 to November 2022, the team has frequently conducted volunteer activities in the Coking Plant and the society based on its positions. To be specific, it assisted needy households and college students, and donated RMB 220,000 to employees in need. It has held more than 50 volunteer activities targeting nursing homes and child care institutes, with over 1,000 participators. In 2022, the team was titled the best volunteer by the Publicity Department of the CPC Central Committee and the Central Commission for Guiding Cultural and Ethical Progress.



> Volunteer services by Guo Mingyi Volunteer Team

Key performance in 2022

The Company invested RMB **16.3993** million in offering aid.

The Company assigned **13** officials for temporary post in Tajik Autonomous County of Taxkorgan.

The Company spent RMB **18.5023** million in buying products from poor villages.

Outlook 2023

In 2023, the Company will adhere to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, study the guiding principles of the 20th CPC National Congress, and implement the policies on and requirements of “carbon dioxide peaking and carbon neutrality goals”, “rural revitalization strategy”, “scientific and technological innovation” and other important events. It will also accelerate to build Angang Steel into a flagship steel company, and practice its original mission of bearing in mind the responsibilities as the eldest son of the People’s Republic of China and dedicating itself to serving the country.

More efficient governance. The Company will continue to improve the ESG governance system and determine more specific development paths. Specifically, it will further integrate ESG concept widely into corporate governance and promote implementing the ESG development strategy, and improve quality and efficiency in business operation. In addition, it will ensure that it and its subsidiaries operate with integrity and compliance, fully protect the legitimate rights and interests of stakeholders, and promote the coordinated development of economic, social and environmental benefits.

More beautiful environment. The Company will continue to perfect the environment protection system and enhance the operation & management of environmental protection facilities. Specifically, it will spare no effort to promote transformation toward ultra-low emission, strengthen control over non-organized emission, and promote the treatment of volatile organic compounds to protect the blue sky. Meanwhile, it will carry out rainwater recycling and waste water zero-discharge projects, and strengthen control over fluoride discharge to protect clear water. It will perform scientific disposal of general solid waste and hazardous waste and reduce discharge, and control soil pollution due to chemicals from the source to protect the natural land. In brief, it will act on the idea that lucid waters and lush mountains are invaluable assets.

Better society. The Company will continue to provide an open channel for employees’ career development, expand the space for their growth to achieve sustainable development of talent cultivation environment. It will research and develop products with higher performance, better quality and better experience, and design “one-stop” material solution to create values together with customers. It will uphold fundamental principles and break new ground, deepen reforms in systems and mechanisms, and enhance its capacity for independent innovation to promote high-quality development with new drivers and strengths. In addition, it will promote the bidirectional integration of lean management and digital-intelligent technology application, and build a digital lean management system to promote digital transformation. It will manage suppliers in an all-round way, and jointly build responsibility supply chain and value industry chain. Moreover, it will promote rural revitalization in all aspects, actively engage in public welfare undertakings, and work unremittingly to build a better society.



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Feedback Form

Dear readers,

Thank you for reading this report! We would like to listen to and adopt your opinions and suggestions about this report, for the purpose of providing an important basis for improving the quality of our CSR report.

Please put a mark of √ for what you have chosen.

Do you think the report has highlighted the Company's work and impacts on the economy, society and environment?

☐ Yes ☐ Not bad ☐ No

Do you think the information and indicators disclosed in this report are clear, accurate and complete?

☐ Yes ☐ Not bad ☐ No

Do you think this report is formulated with the appropriate contents and format for reading?

☐ Yes ☐ Not bad ☐ No

Open questions:

Which parts in this report are you mostly interested in?

Which information that you want to know is not included in this report?

What are your suggestions on our future release of CSR report?

Would you please tell us something about you?

Name:

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