

A Responsible Steel Company, A Beautiful Future



CSR and ESG Report
2021 of Angang Steel Company Limited

About This Report

Dear readers,

The CSR and ESG Report 2021 of Angang Steel Company Limited systematically discloses the philosophies, actions, practice and effects of Angang Steel Company Limited in 2021 regarding environment, social responsibility, and corporate governance in an objective, standard, transparent, and all-around way.

Angang Steel Company Limited
March 2022

Time horizon

This Report describes events of the Company during the period from January 1, 2021 to December 31, 2021. 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.

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
- © *Shenzhen Stock Exchange Social Responsibility Instructions to Listed Companies* by Shenzhen Stock Exchange
- © *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/>).

Table of Contents

Message from Chairman	2
About Us	4
Figures in 2021	6

08 Flexible Governance	Development strategy	10
	Governance structure	10
	Risks and opportunities	11
	Ethical policies and practices	12
	Guarantee of shareholders’ equity	12
	Improvement of quality and increase in efficiency	13
	ESG management	14
18 Clean Environment	Sound management for environmental protection	20
	Clean manufacturing	22
	Manufacturing with clean energy	25
	Mitigation of climate changes	27
	Joint conservation of nature	30
32 Harmonious Society	Sincerity and inspiration	34
	Multiple refinements	40
	Cooperation with partners	46
	Contribution to society	48

Outlook 2022	50
Index	51
Feedback Form	53



Message from Chairman

The year 2021 marked the beginning of the 14th Five-year Plan. It witnessed the 100th anniversary of the establishment of the Communist Party of China, as well as the start of China’s efforts towards the second Centenary Goal and a new journey towards the building of a modern socialist country. At the historic crossroad of the “Two Centenary Goals”, the steel industry, taking deepening the supply-side structural reform as a major task, has continued promoting its transformation from a large-scale industry to a stronger industry. Meanwhile, as the strategic objective of “peaking carbon dioxide emissions before 2030 and achieving carbon neutrality before 2060” was put forward, the steel industry has embarked on the path of green and intelligent manufacturing, which has brought both huge opportunities and challenges for the industry.

In the process of embarking on a new journey towards the high-quality development of the steel industry, Angang Steel has always kept in mind the original intention of “manufacturing better material for creating a better life” and upheld the core values of “innovation, realistic spirit, hard work, and dedication”. The Company focuses on the main task of providing intensive, lighter and smart customer services, optimizes the layout in three aspects, namely, “space, products and industry”, and strives to improve six abilities, including greater efficiency, cost reduction, leading service, advanced technology, smart manufacturing, and ecological integration, continuously promoted the sustainable development of the enterprise economy, society and environment and maximization of its comprehensive value, and strived to fulfill the mission of building Ansteel into a “flagship” in the steel sector.

We strengthen flexible governance and make solid strides for high-quality development. Along with the progressive development of economic globalization and accelerated release of the state measures for deepening reform, the market competition is becoming more drastic. We have had a profound understanding of the risks and opportunities brought by the external environment and industry trend to the sustainable development of a company. On this basis, we have continuously deepened our reform and accelerated the transformation, established and improved the enterprise ESG management system and organizational framework on the premise of ensuring that the business operation conforms to laws and regulations and ethical standards. We have also strengthened ESG management in a systematic way to maximize the comprehensive value of the enterprise, society, and environment. Meanwhile, we have continuously deepened the internal transformation and development, promoted improvement of operation quality and efficiency, and enhanced our competitiveness, thus to open a new chapter in high-quality development.

We deepen the manufacturing by using clean energy to set an example for green steel. The important strategic objectives of “peaking carbon dioxide emissions before 2030 and achieving carbon neutrality before 2060” have put forward new requirements for the clean manufacturing, green upgrading and low-carbon and circular development of the steel industry. To grasp the opportunities in this era, we have upheld the eco-friendly and green development philosophy, implemented clean production in an all-around way, and vigorously unleashed the potential of energy conservation and carbon emission reduction. By doing so, we have minimized resource use, and realized harmless discharge, clean energy utilization and eco-friendly development. We have also continued strengthening the structural optimization and use of clean energy in the steel industry, setting an example for “peaking carbon dioxide emissions in the industry”.

We make our contributions to social harmony and a beautiful future. We have always adhered to the philosophy that “a large-scale enterprise should shoulder heavier responsibilities” and strengthened the coordinated development between the enterprise and society. We have provided equal and diversified employment opportunities, and built a vast development platform for employees with abundant resources and career development channels. Meanwhile, we have constantly improved the governance, management and customer service systems and forged the products carefully with an aim to provide higher-quality products and higher-grade services. We also have provided assistance for rural revitalization, and devoted to public charity, contributing to improving the people’s livelihood and creating a beautiful future.

The year 2022 is a crucial year for implementing the 14th Five-year Plan as well as for promoting the high-quality development of Angang Steel. We will make solid progress toward building our enterprise into a responsible, green, and energetic enterprise. We will continue creating diversified values, and build a beautiful future featuring harmonious co-existence and co-development with our stakeholders.

Chairman of Angang Steel Company Limited 王义栋

About Us

Company profile

Angang Steel Company Limited (hereinafter referred to as “the Company” or “Angang Steel”) is a giant iron and steel complex 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 9.405 billion.

key performance

In 2021,

Total assets

RMB **97.526** billion

Iron production volume

25.35 million tons

Steel production volume

26.47 million tons

Steel product production volume

24.80 million tons

Main businesses

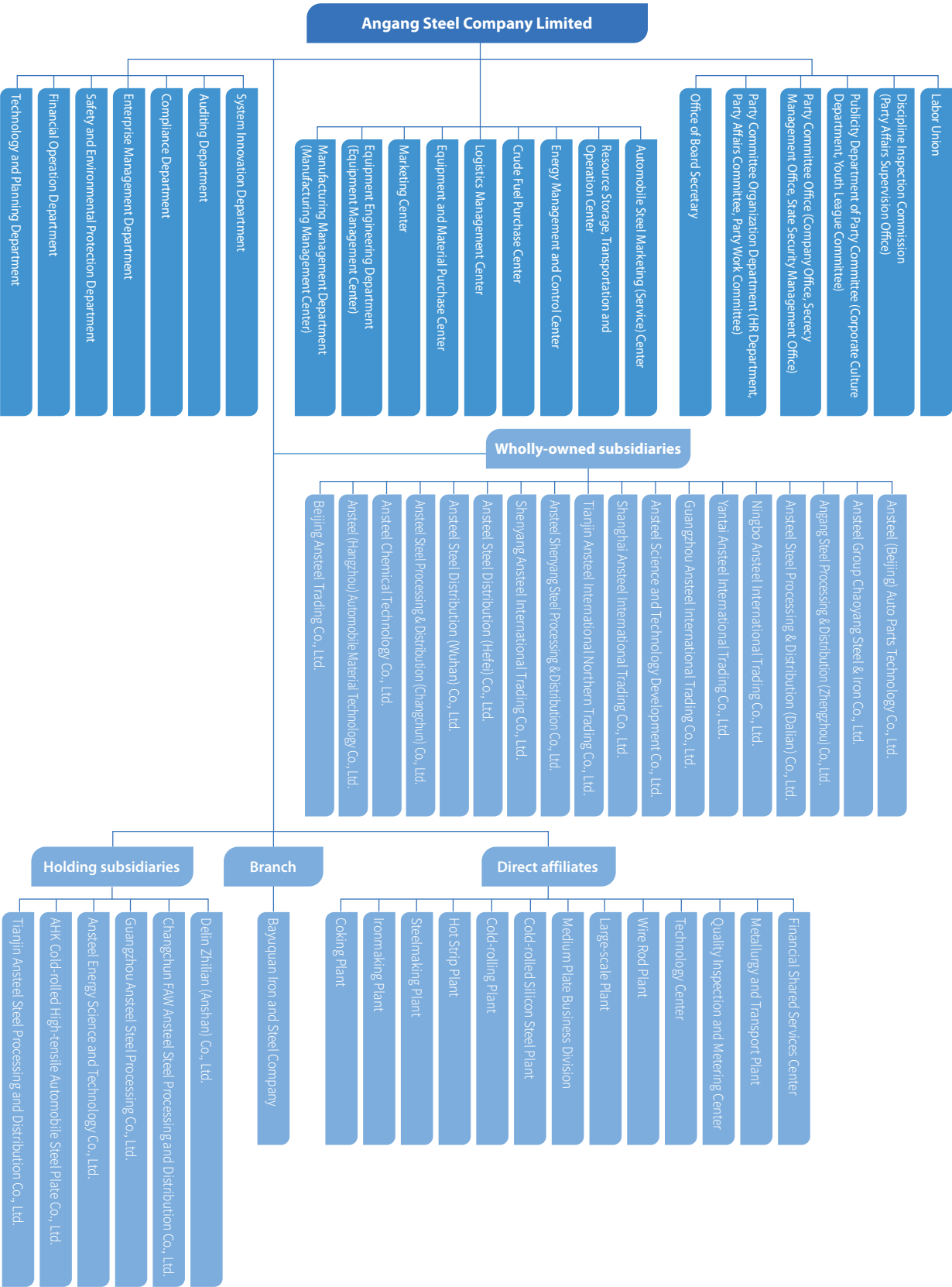
Angang Steel is mainly engaged in steel rolling. It owns production lines and supporting facilities for the whole process of steel production including coking, sintering, ironmaking, steelmaking, steel rolling, rail transport, and energy and power, as well as a sound industry chain for logistics, trade, 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 processing, distribution or sales service institutions in Dalian, Changchun, Hangzhou, Tianjin, Guangzhou, Shenyang, Wuhan, Hefei, and Zhengzhou. It also has international businesses relying on the overseas sales institutions of Ansteel Group.

The Company’s businesses mainly affect the environment and natural resources in three aspects, namely, use of resources, pollutant emission, and energy consumption. In 2021, the Company registered 1.8 tons of water consumption per ton steel, 98.43% of cyclic utilization rate of resources, 100% scrap steel recovery rate, and 569 kg standard coal per ton steel for comprehensive energy consumption, indicating no significant impact from its businesses on the environment and natural resources.

Diversified products

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.

Organizational chart



Figures in 2021

We held **20** meetings of the Board of Directors.

We held **9** meetings of the Board of Supervisors.

The Board of Directors received **8** training courses on anti-corruption.

The anti-corruption training of the Board of Directors covered **64** persons.

4 reports were disclosed on a regular basis.

24 institution investigations were received.

The accuracy rate of information disclosure was **100**%.

The environmental investment reached RMB **2.22** billion.

The comprehensive energy consumption of steel/ton reached **569** kg standard coal/ton.

The energy consumption per 10,000 yuan output value reached **2.35** tons of standard coal equivalent/10,000 yuan.

The “three simultaneousness” principle for environmental protection of construction projects was implemented at a rate of **100**%.

The up-to-standard treatment rate of hazardous wastes reached **100**%.

The up-to-standard use rate of radioactive sources reached **100**%.

The total number of employees was **30,412**.

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

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

The proportion of female managers was **5.10**%.

The investment in research & development reached RMB **5.8316** billion.

The proportion of localized purchase occupied **53.1**%.

6 assistance projects were implemented.

The fund for offering assistance mounted up to RMB **15.596** million.





Flexible Governance

Opportunities and challenges

Along with the progressive development of economic globalization and accelerated release of the state measures for deepening reform, enterprises are deepening reform and accelerating transformation to copy with more drastic market competition. In the meanwhile, high recognition in the capital market has become a goal that listed companies strive to achieve. There is an increasing demand for ESG information disclosure in the capital market, and non-financial information has become a focus of investors' attention.

Our actions

We have ensured that the business operation conforms to laws, regulations, and ethical standards, continuously deepened internal transformation and development, and promoted the improvement of operation quality and efficiency for more edge in competitiveness. We have established and improved the ESG management system and organizational framework and strengthened ESG management systematically to realize the sustainable development of the enterprise, society and environment.

Our achievements

The Board of Directors received **8** trainings on anti-corruption.

The accuracy rate of information disclosure was **100**%.

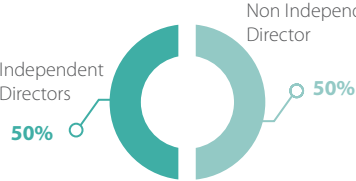
24 institution investigations were received.

Development strategy

The Company keeps in mind the original intention of “manufacturing better material for creating a better life”, and upholds the core values of “innovation, realistic spirit, hard work, and dedication”. Besides, it focuses on the strategic objectives of concentrating on “one main task”, optimizing “three layouts”, and improving “six abilities”, and practices the principle of providing “intensive, lighter, and smart customer services”. With the sustainable development of the enterprise economy, society and environment and maximization of its comprehensive values as a tenet, the Company has been working hard towards the goal of building Ansteel into a “flagship” in the steel sector.

Its core ESG management objective is to create a beautiful future for the stakeholders by shouldering its due responsibilities as a steel company. “A Responsible Steel Company, A Beautiful Future” is its sincere pursuance and firm commitment. It aims to strengthen the sustainable development of the enterprise economy, society, and environment and realize maximization of comprehensive values, build the corporate image as a responsible enterprise, and create a beautiful future together with stakeholders.

Governance structure



key performance

- The Company held **20** meetings of the Board of Directors.
- The Company deliberated and passed **70** resolutions
- The Company held **9** meetings of the Board of Supervisors.
- The Company deliberated and passed **15** resolutions.

As a company that has been listed in both Hong Kong and Shenzhen, Angang Steel has been dedicated to improving its corporate governance level according to the international enterprise governance standard. 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)*, *Rules Governing the Listing of Shares on Shenzhen Stock Exchange*, and *Code of Corporate Governance for Listed Companies*, 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. Based on these rules, the Company has formed a governance structure and effective internal control system, in which the Shareholders’ Meeting, Board of Directors, Board of Supervisors, and Management divide their work and shoulder their responsibilities respectively with effective checks and balances.

Angang Steel’s Board of Directors and Management establish good corporate governance regulations and procedures and for strictly implementing them, so as to guarantee the shareholders’ rights and interests and create values for shareholders in a long run. 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.

Risks and opportunities

Angang Steel has had a deep understanding of the risks and opportunities brought by the external environment and industry trend to the sustainable development of enterprises. Therefore, it always focuses on identifying risks regarding supply, operation, supervision and security generated owing to the global economic downturn and the low-carbon transition in the steel industry, and it makes every efforts to grasp opportunities from enterprise acquisitions & reorganizations and low-carbon transition to protect its sustainable development.

External environment and industry trend	Description of risks and opportunities	Our actions
Ups and downs in the international steel market	◆ The iron ore price rose sharply and deviated from the fundamentals of supply and demand; the price of scrap steel and coking coal rose; the cost of environmental protection increased.	◆ Strengthen the market survey and analysis; grasp the market laws; follow up the market trends; determine the output according to sales prospects.
Global economic downturn	◆ Affected by the global pandemic, and global economic downturn, upstream manufacturing plants of the steel supply chain suffered from the survival risk, which caused the supply risk in purchase.	◆ Optimize the industry chain deployment, strengthen the establishment of a sustainable supply chain, and help upstream manufacturers reinforce risk management.
Low-carbon transition in the steel industry	◆ The Low-Carbon Work Promotion Committee for the Steel industry clarified the work content and time node of low-carbon development, technology and standards. As an enterprise in the steel industry, the Company has a great steel output and complicated discharge mechanism where many links are related to decarburization.	◆ Use renewable energy to replace traditional ones on the basis of improving the energy use efficiency; eliminate outdated production capacity; fully unleash the potential of energy conservation and carbon emission reduction; respond actively to climate change.
Accelerated acquisitions and reorganizations	◆ Since enterprise acquisitions and reorganizations in the industry are going to be accelerated, placement of employees will be an important challenge for the steel industry due to social and commercial risks. ◆ Industrial restructuring will improve the degree of concentration of the steel industry, and help to form a sound, stable and sustainable order.	◆ Provide each employee with equal and diversified employment opportunities and a stage for them to realize their values. ◆ Cultivate the high-caliber talents that can shoulder the heavy responsibility for transformation and upgrading in the steel industry.
Test of work safety	◆ Steel production relates to the hazard sources such as hazardous chemicals, as well as upstream and downstream enterprises; therefore, there are also work safety risks caused owing to the inadequate supervision or inspection.	◆ Carry out special campaigns to ensure the workplace safety, and facilitate the building of a dual system for the hierarchical management & control of safety risks and hazard investigation & elimination.
Enhanced instability in operation	◆ There may also be the risks of operation instability and market risks caused by corruption scandals.	◆ The Company takes the following actions: Establish a big data supervision platform, and promote corrections according to case analysis; strengthen warning education to prevent risks in clean governance; encourage employees to report by sending short messages or emails and to actively monitor relevant risks.

Full view of Angang Steel's plant area

Ethical policies and practices

key performance

- The Board of Directors received **8** trainings on anti-corruption.
- The trainings covered **64** persons.

Angang Steel takes observance of laws, regulations and social norms as a prerequisite for its sustainable development. It works hard to be a good corporate citizen by comprehensively implementing the rule of law, establishing a compliance management system, and complying with commercial ethics and norms.

Compliance with laws and regulations

The Company has strengthened the planning and top level design for the rule of law, made an overall plan for the enforcement of laws in Ansteel, and coordinated and strengthened the rule of law simultaneously with its reform and development. It has incorporated the rule of law into the appraisal of subsidiaries, and strengthened the enforcement of laws in the subordinate companies level by level. It has also strengthened the primary responsibility for compliance of major projects in key business areas, and carried out special campaigns regarding safety & environmental protection, employment, listed company governance, etc.

key performance

- 4** regular reports were disclosed.
- 73** temporary announcements were disclosed.
- 24** institution investigations were received.
- 100%** accuracy was achieved in terms of information disclosure.

Clean governance

The Company has continually combatted corruption and upheld integrity to maintain a sound political atmosphere of integrity. It has taken warning education as an important basis of integrity and self-discipline, and made a profound analysis of root causes for corruption. Over 1,300 Party members, leading officials and personnel at key posts have received the warning education, which has practically strengthened the influence of the warning education. It has also held talks with newly-appointed managers about clean governance, and organized managers at all levels to write more than 300 comments about the warning education, strengthening employees' awareness of honest work and self-discipline.

Guarantee of shareholders' equity

Angang Steel has actively cooperated with the regulatory authority to comply with increasingly stricter requirements of enterprise information disclosure. In terms of actions, it has safeguarded the smooth functioning of the information communication channels, and optimized the information disclosure procedures. By doing so, it has earnestly guaranteed the exact and standard disclosure of relevant information and continuously improved the transparency of business operation.

Deepening transparent operation

- Release regular reports on schedule so as to show its operating performance and core competitiveness to the capital market timely and precisely and to further deepen investors' understanding and identification of company development.
- Give sufficient disclosure to the matters relating to performance forecast, equity incentives, related party transactions, and changes in senior management.

Ensuring the smooth functioning of communication channels

- Formulate the *Measures for Investor Relation Management* which is an institutional norm to standardize the establishment of investor communication channels and the conduct of investor relations activities.
- Show its investment value by holding performance presentations, attending the strategy meetings held by brokers, etc.
- Continuously strengthen the communications with investors by means of telephone, network, new media, etc. to maintain a good relationship with investors.



» The Company won the award of "Best Practice Case of Performance Presentations for Annual Report 2020 of Listed Companies".



» Mid 2021 achievement meeting

Improvement of quality and increase in efficiency

Angang Steel has strengthened its management & control and set up benchmarks through standardization, refinement, and IT application, worked continuously to make enterprise management more rational and efficient, and promoted the comprehensive improvement of both operation quality and efficiency, so as to create diversified values for shareholders and other stakeholders.

key performance

- Carried out **15** audit projects
- Put forward **53** audit opinions and suggestions



- By seizing on the opportunity provided during the implementation of the three-year action plan for reform of state-owned enterprises, the Company has 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.
- In 2021, the Company carried out 15 audit projects, and put forward 53 audit opinions and suggestions, which effectively played the role of internal audit in strengthening management, improving operation, preventing risks and creating values.



- With strengthening the management system and improving the management ability as the major tasks, the Company has focused on the gap between its key performance indicator and that of advanced enterprises in the industry, and taken measures for promoting system building, mechanism establishment and cultural progress.
- According to the 14th Five-year Plan and the goal of improving the "Five Forces" (Michael Porter's Five Forces Model), the Company has focused on its major responsibilities and main businesses, combed its weaknesses and weak links in the field of operation & management, and established and implemented specific improvement measures in an all-around way.

In July 2021, Ansteel Group Chaoyang Iron & Steel won the title of Key and Benchmarking Enterprises granted by the State-owned Assets Supervision and Administration Commission of the State Council.



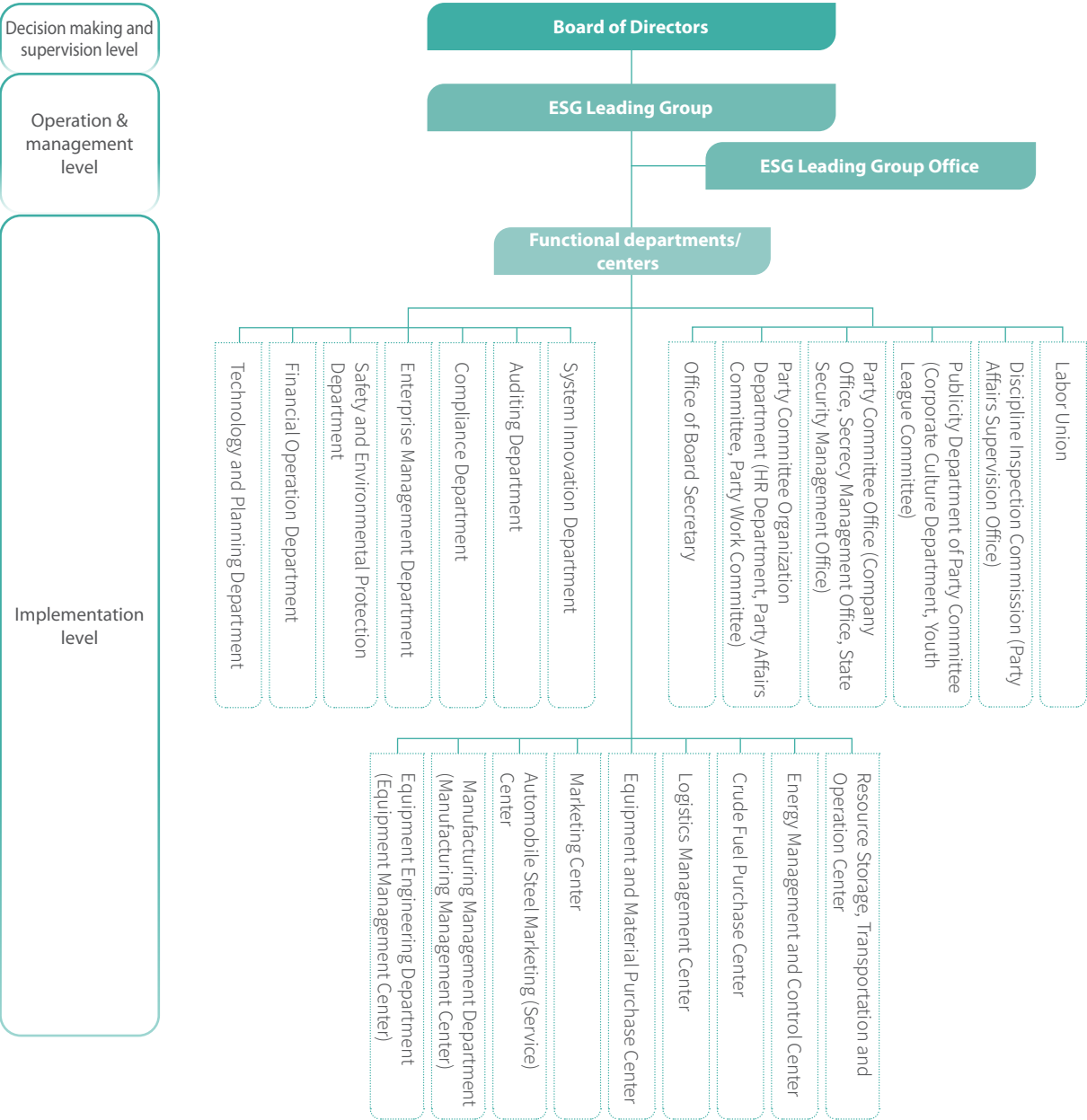
- The Company has applied information technology in each link of production and operation. It established the *Implementation Plan for the Reform in the Production and Sales System and Management Improvement Plan for the Finance, Purchase, Logistics, and Equipment Systems*. It has also promoted the optimization and implementation of management & control model, organizational functions, business flow, and rules and regulations, and realized integration and matching between the management system and information system.
- In accordance with the requirements for building "a Smart Ansteel", the Company has made smart development planning, and organized each production base to reform the intelligent production lines, thereby strengthening the smart operation and building a smart factory.

ESG management

Angang Steel has established and improved an ESG governance structure, and implemented the A-STEEL promotion program, to comprehensively strengthen its ESG management system in a systematic, normalized, and institutionalized way. By doing so, it has improved its ability to create comprehensive values in economy, society and environment and strengthened its sustainable development.

Governance structure

The Company has established 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, and integrated ESG indicators into every aspect of its management and operation.

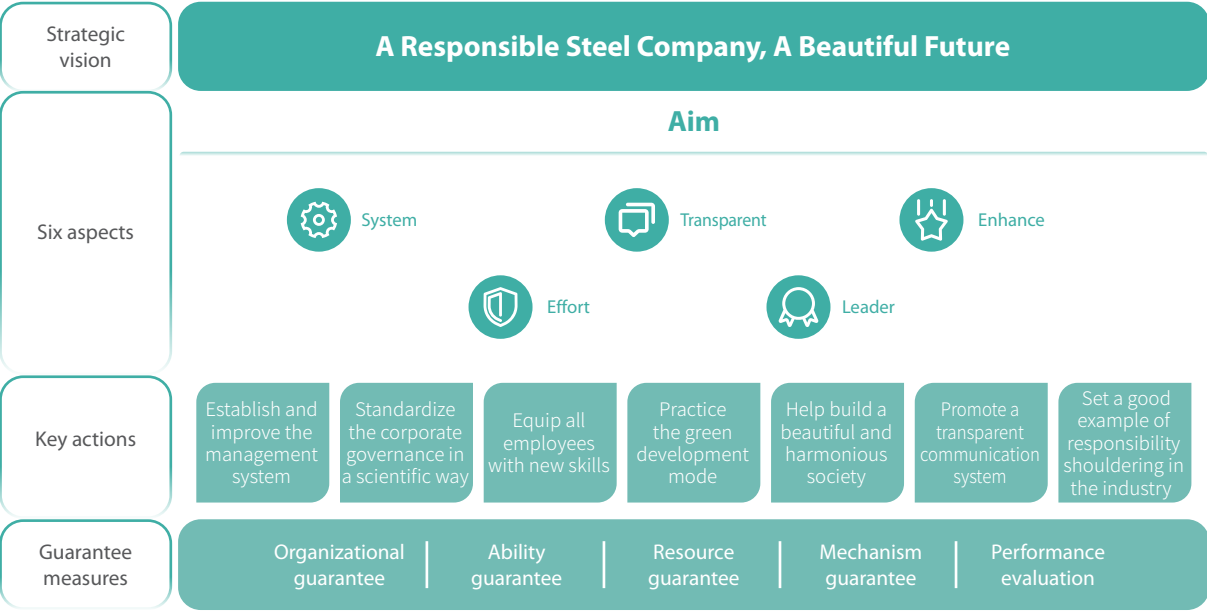


» ESG governance structure of Angang Steel Company Limited

Decision making & supervision level	Board of Directors	<ul style="list-style-type: none">◆ Examine and approve the Company's ESG vision, management principle and planning.◆ Examine and approve ESG disclosure policies and reports.◆ Supervise the Company's ESG opportunity and risk identification process, and determine important ESG risks and opportunities.
	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.◆ Participate in the identification and assessment of the Company's major ESG risks and opportunities.◆ Supervise and guide the new ESG trends and risks of the Company, and evaluate the effectiveness of ESG structure and management model on this basis.◆ Periodically review the progress of ESG goals and put forward improvement suggestions.◆ Supervise and guide the implementation of ESG management planning.◆ Supervise and guide the Company's importance evaluation and report of ESG topics.◆ 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">◆ Identify and survey internal and external ESG opportunities and risks; analyze important opportunities and risks according to the ESG risk survey results; submit the results to the Strategy Committee after the review of the ESG Leading Group; 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 important ESG indicators and objectives and submit them to the Strategy Committee after the review by the ESG Leading Group; manage the ESG indicators and objectives approved by the Board of Directors to facilitate the fulfillment of the objectives.◆ Follow up the requirements for ESG information disclosure of the State-owned Assets Supervision and Administration Commission of the State Council, Hong Kong Exchanges and Clearing Limited, and Shenzhen Stock Exchange.◆ 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.◆ Collect the data and information required to prepare the annual ESG report of its own department/center and submit them to the ESG Leading Group Office.◆ Provide relevant information and data for the ESG Leading Group Office to respond to the investors.

Promotion program

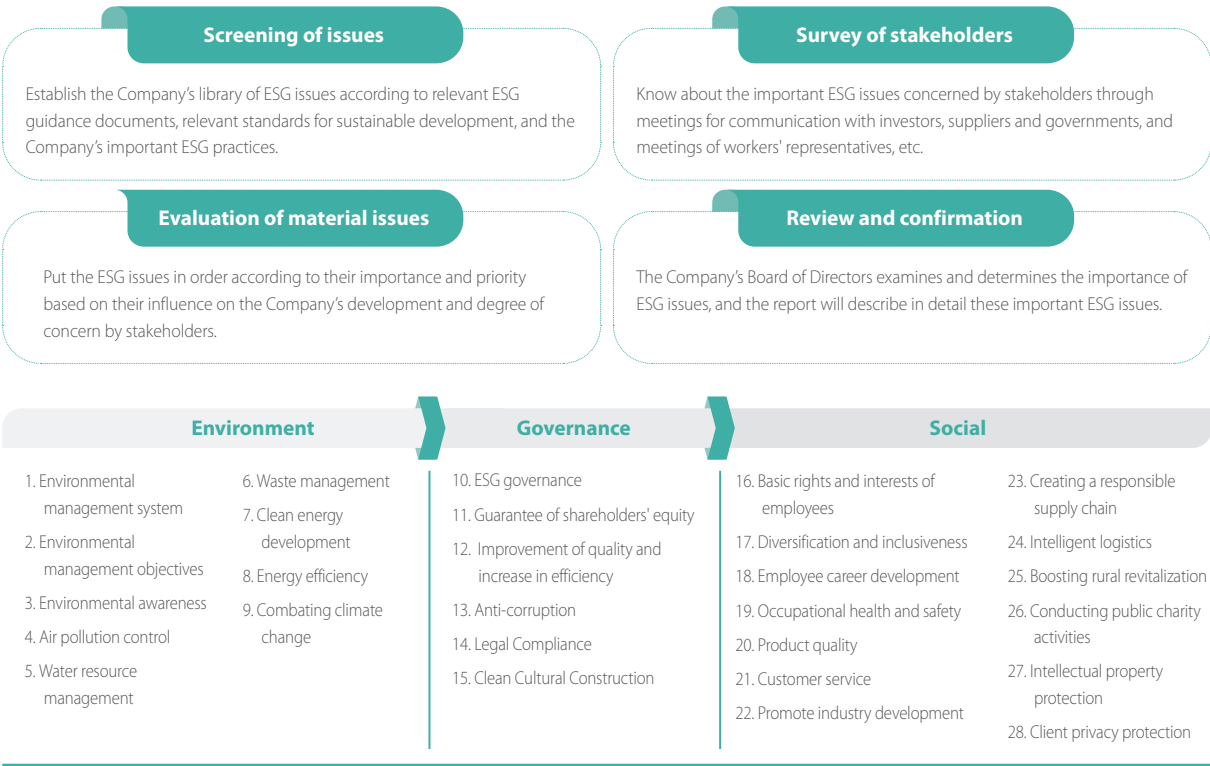
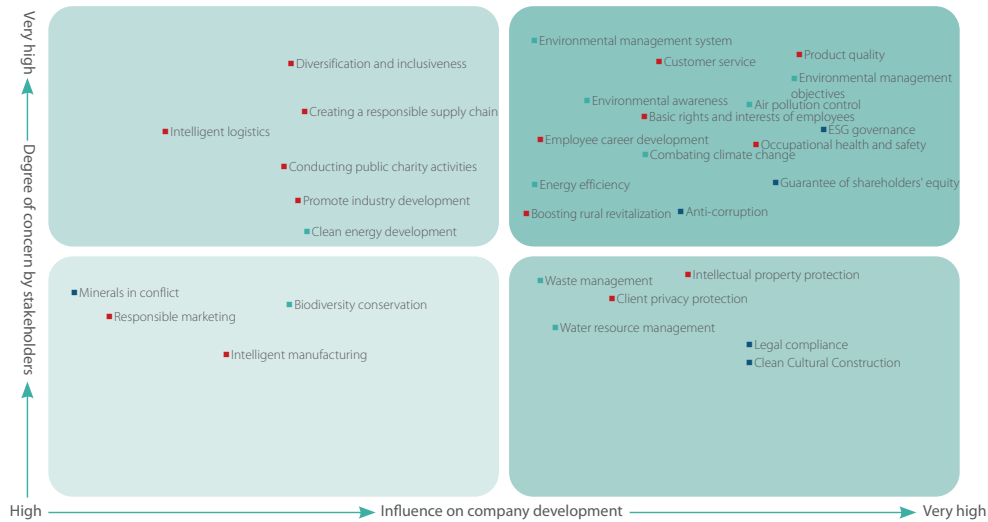
The Company has formed an "A-STEEL" Program based on the industrial characteristics, its own development and core cultures. Specifically, it's composed of six aspects, namely, Aim, System, Transparent, Enhance, Effort, Leader, to support the implementation of the strategic vision.



» A-STEEL promotion program of Angang Steel Company Limited

Material issues

Based on an analysis of the challenges in its sustainable development as well as relevant requirements of Hong Kong Exchanges and Clearing Limited and Shenzhen Stock Exchange, and the opinions of stakeholders, the Company has identified 28 material issues that are influential to its development and are highly concerned by stakeholders.



Communications with stakeholders

The Company has always listened to the requirements and suggestions of all parties with attention, constantly expanded the ways and means for communicating with stakeholders, and adequately guaranteed the stakeholders' right to know, right of participation, and right of supervision, 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	◆ Comply with laws and regulations	◆ Respond to policies	◆ Receive visitors	
Regulatory authority	◆ Ensure open and transparent information	◆ Meet the supervision requirements	◆ Release notices periodically	◆ Accept inspections of the supervision department
Shareholder	◆ Maintain and increase value of assets	◆ Ensure open and transparent information	◆ Hold performance presentations ◆ Release annual reports periodically	◆ Convene meetings for communication with investors
Customers	◆ Ensure smooth communications	◆ Guarantee product quality	◆ Open customer hotlines	◆ Conduct customer satisfaction surveys
Employee	◆ Guarantee wage and welfare ◆ Ensure employee health and safety	◆ Provide fair promotion and development opportunities ◆ Care for employees	◆ Convene meetings of workers' representatives ◆ Carry out recreational and sports activities	◆ Conduct employee satisfaction surveys
Partner/supplier/industry	◆ Keep commitment ◆ Ensure transparent purchase	◆ Promote industrial progress	◆ Carry out strategic cooperation ◆ Communicate on a regular basis	◆ Disclose purchase information ◆ Participate in industrial exchanges
Environment	◆ Strengthen environmental management ◆ Promote energy conservation and emission reduction	◆ Boost the realization of the carbon dioxide peaking and carbon neutrality objectives	◆ Release reports periodically	◆ Disclose environmental information
Community	◆ Serve the local economy ◆ Improve local people's livelihood	◆ Conduct public charity activities	◆ Carry out rural revitalization activities	◆ Provide charitable contribution and volunteer services
Media	◆ Disclose information in an open and transparent way		◆ Release important information and news in time	◆ Accept media's interviews actively



Clean Environment

Opportunities and challenges

The CPC Central Committee put forward the strategic objectives of "peaking carbon dioxide emissions before 2030 and achieving carbon neutrality before 2060", and issued the *Action Plan for Carbon Dioxide Peaking Before 2030* which indicates that we should promote the structural optimization and use of clean energy to replace traditional ones in the steel industry. The action plan also points out that it has been the new opportunities and challenges in the new era to accelerate the clean manufacturing, green upgrading, and low-carbon and circular development of the steel industry.

Our actions

Angang Steel has established and improved the environmental management system to actively cope with climate change. It has put great efforts to promote substitution of renewable energy sources based on the improvement of the energy use efficiency, eliminated outdated production capacity, and deeply unleashed the potential of energy conservation and carbon emission reduction, thereby achieving minimization of resources, harmless discharge, clean energy use, and eco-friendly development, and making active contributions to building a community with a shared future for mankind.

Our achievements

The environmental investment reached RMB **2.22** billion.

The comprehensive energy consumption of steel/ton reached **569** kg standard coal/ton.

The energy consumption per 10,000 yuan output value reached **2.35** tons of standard coal equivalent/10,000 yuan.

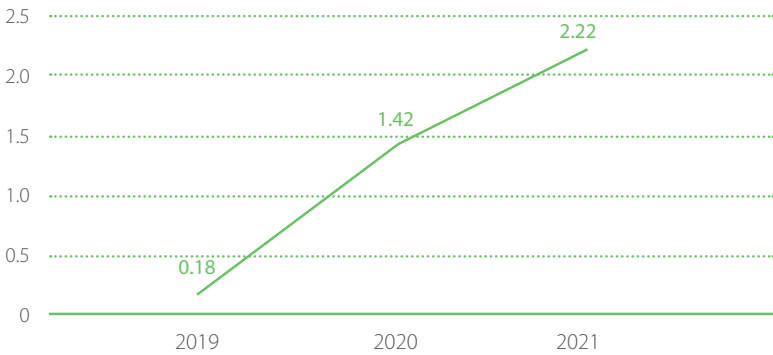
Sound management for environmental protection

Angang Steel has actively responded to the policies of the CPC Central Committee for establishing a green, low-carbon and cyclic economic development system, and remained committed to pursue and act in line with the new development philosophy. It has maintained a tight focus on the environmental protection objectives to improve the environmental management system, raise the environmental awareness, and increase the internal drivers of green development.

Environmental protection system

The Company has continued increasing the investment in environmental protection. It has established and operated ISO 14001 environmental management system, made environmental impact assessments and environmental emergency plans and conducted routine environmental supervisions to strictly monitor the environment risks and strengthen normalized, regular and long-lasting environmental management. In 2021, there were no serious environmental pollution accidents in the Company.

Total capitals invested in environmental protection in a year (unit: billion yuan)



Environmental impact assessment

Organize environmental assessment and declaration for the Company's newly-built, reconstructed and expanded projects; strictly implement the system with regard to "three simultaneousness" in environmental protection; make sure that supervision, design and construction organizations seriously follow the requirements for environmental assessment and reply. In 2021, the Company finished the environmental assessment reply of 8 projects, including a 600m² sintering machine, and the environmental protection acceptance of 32 projects, including the establishment of needle coke production line using chemical technology.

Environmental emergency plan

Revise the *Emergency Response Plan for Weather with Heavy Air Pollution and Emergency Response Plan for Radiation* which apply to its own department; establish and improve the Response Plan for Environmental Emergencies; identify and monitor potential accidents or emergencies; conduct special inspections to the implementation of these plans by relevant departments; carry out a drill on comprehensive emergency response plan for environmental emergencies; organize a drill against the leakage of sintering, desulphurization, and denitration sulfuric acid storage tank in the west zone of Ironmaking Plant to improve the emergency response process and emergency treatment ability.

Daily environmental supervision

Standardize the management of the sewage discharge permission and carry out special inspection of environmental protection; strengthen the stable operation of environmental facilities; ensure the routine accounting and monitoring of environmental indicators according to the Calculation Method of Actual Discharge Capacity of Contaminants specified in the *Technical Specifications for Sewage Discharge Permit*. The Company ensures the data statistics and disclosure in strict accordance with the *Guidance for Fair Information Disclosure of Listed Companies* and the accounting methods and norms for steel manufacturing enterprises, and the statistics and methodology remain unchanged from previous years. In 2021, 36 special inspections and 3 environmental protection reviews were organized.

key performance

- The "three simultaneousness" principle for environmental protection of construction projects was implemented at a **100%** rate.
- The up-to-standard disposal rate of hazardous wastes reached **100%**.
- The up-to-standard use rate of radioactive sources reached **100%**.

Environmental protection objectives

The Company has insisted on the goal-oriented principle, and established an environmental pre-warning mechanism to clarify 4 pre-warning indicators, including pollutant emission, up-to-standard disposal rate of waste, etc., timely monitor the pre-warning values and strictly control the progress of environmental indicators.

Environmental Pre-warning Indicators of Angang Steel

Risk pre-warning indicator	Unit	Pre-warning value of monitoring		
		Normal 	Yellow pre-warning 	Red pre-warning
Pollutant emission indicator	/	Comply with the emission standard	/	Fail to comply with the emission standard
Up-to-standard disposal rate of solid waste (including hazardous waste)	%	100	/	<100
Up-to-standard use rate of radioactive sources and radiation devices	%	100	/	<100
Rate of implementation of the "three simultaneousness" principle in environmental protection of construction projects	%	100	/	<100

State of Fulfillment of Angang Steel's Environmental Objectives

Indicator objective	Target value	Actual value	State of fulfillment
Comprehensive energy consumption of steel/ton (kg standard coal/ton)	570	569	Declined by 0.18% compared with the target value
Energy consumption per 10,000 yuan output value (ton of standard coal equivalent/10,000 yuan)	2.4	2.35	Declined by 2.08% compared with the target value
Sulphur dioxide (t)	10485.5	9070.4	Declined by 13.5% compared with the target value
Nitrogen oxide (t)	27425	25284.5	Declined by 7.8% compared with the target value
COD (t)	116	73.77	Declined by 36.4% compared with the target value

Environmental awareness

The Company has been dedicated to publicizing and implementing the philosophy of energy conservation and carbon emission reduction. It has raised the environmental awareness internally, created an atmosphere for environmental protection externally, and worked hand in hand with employees, communities and other stakeholders to be the champion, practitioner and leader of green life.

key performance

- The investment in environmental protection training reached RMB **135,000**.
- The environmental protection training covered **3,500** persons.

Raising the environmental awareness

- Organize online video training such as "cloud lecture" about energy conservation and carbon emission reduction, and conduct environmental protection training offline such as energy conservation knowledge test.
- Advocate "green office", arouse the enthusiasm of employees for environmental protection, and further raise the environmental awareness of all staff and workers.

Creating the environmental protection atmosphere

- Publicize the Company's experience in green development through Liaoning Daily, Liaoning TV, Beidou Rongmei APP, and the mini program of Liaoning Energy Circle, and so on.
- Organize Energy Conservation Publicity Week and Low Carbon Day activities, and conduct public benefit activities concerning environmental protection to encourage communities to practice the green and low carbon philosophy together.

» Green plant area

Clean manufacturing



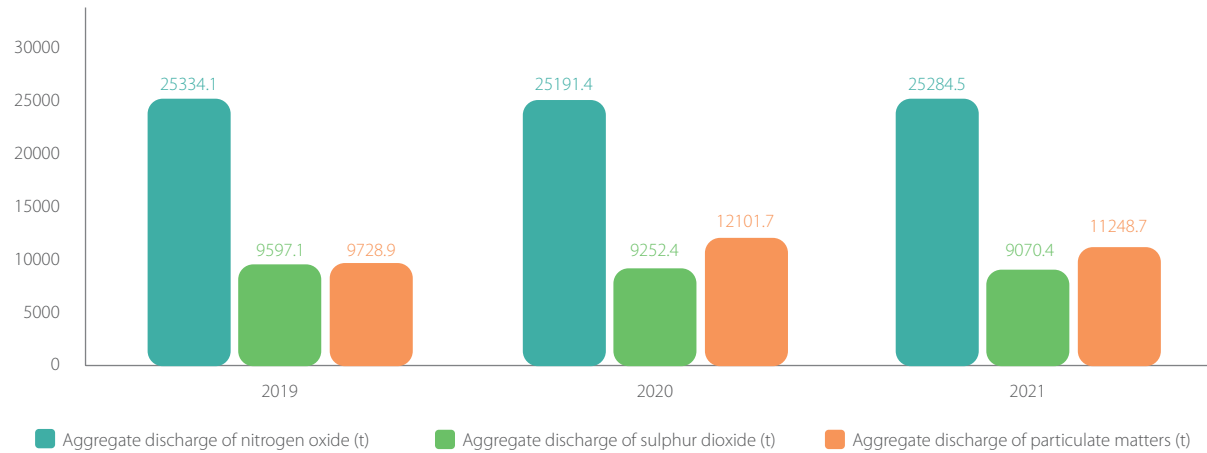
The Company won the title of “Chinese Environment Friendly Steel Enterprise with Clean Production” in 2020

Angang Steel has always adhered to the "3R+G" development principle, namely, "Reduce, Reuse, Recycle and Green", and taken measures for flue gas treatment, wastewater discharge reduction, comprehensive utilization of waste, etc., to strengthen the green upgrading of the steel industry and seek for green manufacturing in the industry.

Air pollution control

The *Measures for the Implementation of Production Capacity Replacement in Steel Industry* which was revised and issued by the Ministry of Industry and Information Technology in 2021 put forward higher requirements for air pollution control. To meet the requirements of the measures, the Company strictly complied with the *Law of the People's Republic of China on the Prevention and Control of Air Pollution* and other laws and regulations, and has continued launching the blue sky campaign and implemented ultra-low emission projects, to ensure that its pollutant emission is compliant with rules and regulations and under control in an all-around way for winning the tough battle of air pollution control.

Assessing and monitoring the current situation	<ul style="list-style-type: none">Assess and monitor the current situations of VOCs (volatile organic compounds); form the comprehensive VOCs treatment plan where "one plant, one plan" is used; check and clarify the aggregate discharge; nail down the key treatment processes and projects.Conduct onsite investigations for the pre-assessment of ultra-low emission and make correction plans.
Strengthening ultra-low emission	<ul style="list-style-type: none">Implemented 80 ultra-low emission transformation projects, including stokehole dust removal renovation of 1# blast furnace, addition of three dust removal processes in the First Steelmaking Plant of Ansteel, etc.
Strictly controlling smoke dust and tail gas	<ul style="list-style-type: none">Conduct tail gas detection to about 10,000 vehicles entering the plant area, and basically eliminate black tail gas of motor vehicles.All organizations and departments replace the dust collecting bags on time. In 2021, 136,402 dust collecting bags of 88 dust removers were replaced, which guaranteed the stable and up-to-standard emission.Strictly implement the dust management & control measures at Lingshan stock yard, which results in effective reduction of the unorganized flue gas emission at the stock yard.
Implementing the emergency response plan	<ul style="list-style-type: none">Form the response plans for different weather with heavy air pollution through "improvement of the efficiency of environmental facilities combined with production halt and limitation", and break down the accounting method of aggregate emissions to ensure the planned reduction. In 2021, the emergency response plans for the weather with heavy air pollution were used for 7 times.



Water resource management

The quick growth of population and urbanization process has brought great pressure to the use of water resources. The Company actively encourages water consumption reduction and reuse of sewage to promote the conservation and intensive use of water resources.

Water consumption reduction

- Establish a management & control center, develop the water use expert system, and carry out intelligent management & control to make water resource management more intelligent and accurate.
- Strengthen the substitution of underground water with surface water, increase water use amount from the kitchen water supply project and reduce use of the underground water year by year. In 2021, the intake and consumption amount of underground water was reduced by 20.36% year on year in the headquarters.
- Transform the water supply network through optimization and reduction, and conduct water conservation renovation projects. The Company has cooperated with Zhejiang University to tackle key problems in technical R&D and reduce the leakage of pipelines.

Reuse of sewage

- Continuously improve the treatment effect and optimize the technology of Xidagou sewage disposal system, etc. In 2021, the sewage reclamation and utilization rate at the headquarters reached 32.1%, satisfying the requirements of the National Development and Reform Commission for reuse of sewage at a rate of 25% in advance. Besides, the production and domestic sewage in the main plant area realized near zero release.
- Implement 6 projects to improve the water resource use efficiency, including collection of gas seal water in the blast furnace in the Energy Management & Control Center.

Indicator	2019	2020	2021
Total water consumption (t)	52927491	49379737	47532105
Water consumption per ton steel (t/ton of steel)	1.95	1.86	1.8
COD (t)	126.48	75.89	73.77
Ammonia nitrogen (t)	12.078	4.44	8.43

Note: After the dust suppression project for closed coal silo on the stock yard of Bayuquan Branch was put into service in December 2020, water spraying has not been adopted for coal dust suppression on the stock yard, as a result of which, the total water discharge and total ammonia nitrogen emissions are increased. However, the total water discharge and ammonia nitrogen emission concentration still conform to the emission standard.

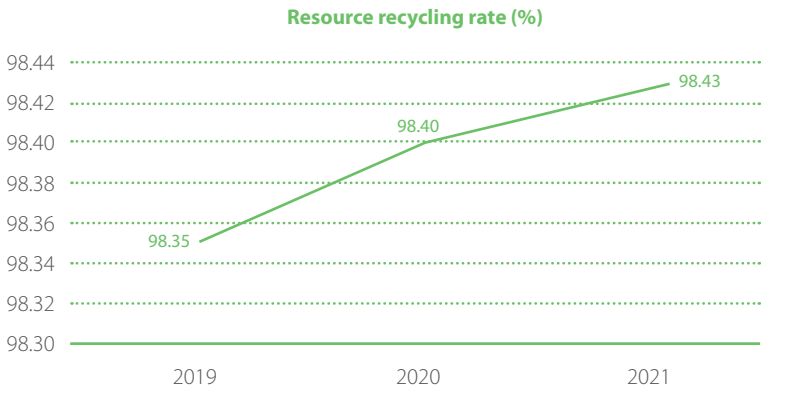
Waste recycling

The Company has strengthened waste management & control by identifying the main links that produce wastes in production and operation, and implementing classified management and targeted disposal to promote harmless disposal and reutilization on the basis of compliance with the the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste*, the *Guidance on the Comprehensive Utilization of Bulk Solid Waste in the 14th Five-year Plan*, and other waste system regulations and disposal technical index requirements.

Waste Identification and Disposal				
Region	Business/link	Type of waste	Name of waste	Disposal mode
Anshan, Bayuquan, Chaoyang	Steel production	General solid waste	Steel slag, granulated slag	Recycling
		Hazardous waste	Waste oil sludge, waste oil drum	Harmless disposal

key performance

- The reclamation rate of scrap was **100%**.





Indicator		2019	2020	2021
Packaging material	Total amount (10,000t)	7.76	7.05	7.3
	Density (ton/ton steel)	0.42	0.39	0.41
Hazardous waste	Total amount (t)	0	0	0
	Density (ton/ton steel)	0	0	0
Solid waste	Total amount (t)	150000	150000	150000
	Density (ton/ton steel)	0.0082	0.0084	0.0084

Case Output quantity of scrap is almost doubled year on year.

In March 2021, the Company set the goal of increasing the steel output by improving the use rate of scrap. To this end, the Company made arrangement for tankage appropriately and adjusted the scrap resources according to the output plan for scrap, with an aim to ensure the timely supply of scrap with the high quality and right quantity. After these actions taken, its output quantity of scrap was increased by 205.4% year on year, and its scrap boxes were output timely at a rate of 99%. Increase in the utilization rate of scrap will certainly reduce the carbon emissions in the previous processes, including sintering, coking, and blast furnace operation. So, in this sense, it is not only conducive to clean production, but also helpful to the effective utilization of resources.

Extensive reading

Scrap

Scrap refers to the ferrous waste (such as scrap edges, scrap ends, etc.) that is not made into products during the production in steel plants as well as steel materials in the equipment and members that are scrapped after use. Those with the major component being steel and cast iron are called scrap steel and scrap iron respectively, and they are collectively called scrap.

Manufacturing with clean energy

Angang Steel has made great efforts to invent and promote new technologies for energy conservation and emission reduction and improve the efficiency of energy utilization. It has also strengthened the large-scale and high-quality development of power generation using hydropower and wind energy, and improved the energy system of green and low carbon cyclic development to promote green manufacturing and manufacturing with clean energy.

Promoting clean energy

key performance

- The amount of purchased clean energy reached **350** GWh.

(The Anshan Headquarters base and Chaoyang base)

The Company has worked continuously to develop and use clean energy. It has actively developed the green hydrogen project, generated and used photovoltaic and wind power, and promoted clean energy development based on its professional advantages to power the building of a clean and low-carbon energy system. In 2021, the Anshan Headquarters base and Chaoyang base purchased clean energy of 350 GWh.

Case Start the project of COG to LNG with co-generation of hydrogen

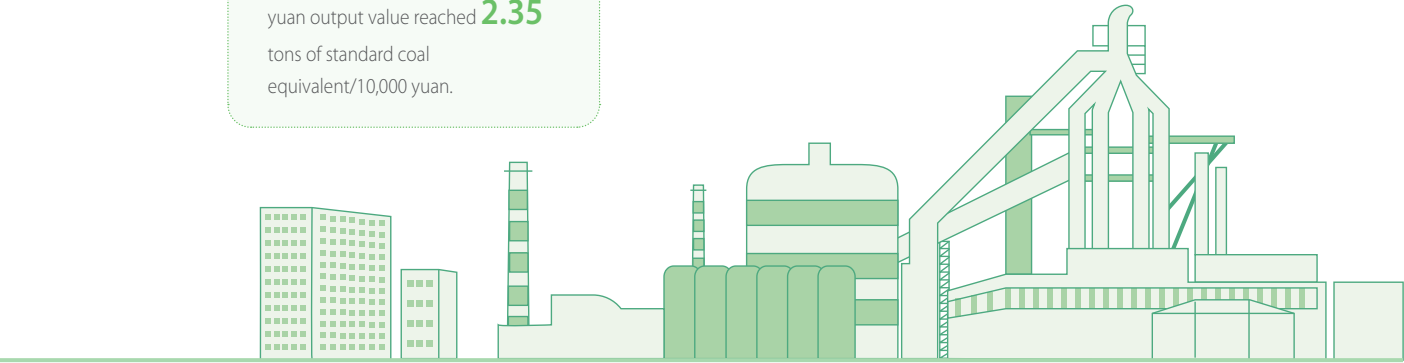
In May 2021, the Company's subordinate - Ansteel Energy Science and Technology Co., Ltd. established a joint venture jointly with CIMC ENRIC Investment Holdings (Shenzhen) Co., Ltd., a subordinate of CIMC ENRIC Holdings Limited, to start the project of COG to LNG with co-generation of hydrogen. After completion, it can produce diversified clean energy products through the deep processing and separation of coke-oven gas, thereby conserving energy and reducing emissions and providing new choices for using clean energy.

Improving energy efficiency

key performance

- The comprehensive energy consumption per ton steel reached **569** kg standard coal/ton.
- The energy consumption per 10,000 yuan output value reached **2.35** tons of standard coal equivalent/10,000 yuan.

The Company has strengthened lean management of energy, improved technical innovation and research for energy conservation, and promoted the cyclic utilization of energy, with an aim to strengthen energy conservation and consumption reduction, and improve the energy use efficiency from the perspectives of management and technology.



key performance

- The total energy consumption reached **15,079,108** tons of standard coal, declined by about **2%** year on year.
- The dissipated energy density was **0.57** ton/ ton steel, declined by about **1.9%** year on year.

Strengthening energy consumption management

Establish the energy consumption goal; strengthen monitoring of energy conservation; ensure energy consumption monitoring of industrial furnaces; carry out lean energy management; promote improvement of production efficiency; unleash the energy conservation potential. In 2021, the Company fulfilled all other major energy targets, including the comprehensive energy consumption per ton steel, energy consumption per 10,000 yuan output value, proportion of self-generating power, and new water consumption per ton steel.

Organizing technical research of energy conservation projects

Implement 20 plant-level energy conservation projects, including transformation of the burner of 1 # new pulverized fuel fired boiler of Energy Management & Control Center, energy conservation transformation project of the sintering air compressor station of Bayuquan Energy and Power Department, energy conservation transformation project of the whirling well water pump of Chaoyang Steelmaking Plant of Ansteel Group Chaoyang Iron & Steel, etc.; further strengthen the post-evaluation of energy conservation projects; take correction measures and release rectification notices for the projects that fail to meet the standards according to the closed-loop management requirements of energy conservation projects.

Carrying out exchanges of energy-saving technology

Have exchanges with State Power Investment Corporation, China Three Gorges Corporation and CSCE Energy about 26 technologies such as wind power generation, photovoltaic power generation, air suspension centrifugal blowers, etc. Among them, the on-site investigation and data collection of photovoltaic power generation, ORC power generation and energy conservation technology of the air compressor system had been finished. Technical equipment such as energy-efficient water pumps and turbines has been put into service onsite with effective results.

Indicator		2019	2020	2021
Energy	Total consumption (ton standard coal)	15442384	15389490	15079108
	Density (ton/ton steel)	0.569	0.581	0.57
Power	Total consumption (10,000MWh)	1467148	1481361	1490784
	Density (MWh/ton)	541	559	563

Case Strengthen recycling of secondary energy

In order to improve the energy use efficiency adequately, the Company has actively developed energy conservation projects. It has continuously strengthened the "replacement of coal with gas", and taken full advantage of coal gas resources to improve the recycling of secondary energy and reduce steam coal consumption. In 2021, the steam coal consumption was 243,000 tons, reduced by 297,000 tons year on year, which reached a record high.

Case Find more energy-efficient logistics mode for the transport of dry quenching

In February 2021, a railway-specific container truck loaded with dry quenching coke drove to the loading line of a subsidiary of Huabei Mining Group, and was sent to Bayuquan branch of Angang Steel through rail-sea transportation, marking the first successful sea-rail intermodal transportation of dry quenching coke container between them. The rail-sea intermodal transportation of containers is the Company's first try in the transport of dry quenching coke. It not only realizes the zero re-packing of goods, but also reduces the loss of coke from 10.4‰ to 0.63‰, with the percentage of loss reduced by 94%. Moreover, it finds a more environment friendly logistics mode for the transport of dry quenching coke featuring a lower cost and fewer losses.

Mitigation of climate changes

Climate change is a challenge to the mankind. Angang Steel is committed to seriously identify climate change risks, and actively explore new ways of low-carbon metallurgy, with a focus on making low-carbon transition become an important driver in the steel industry for combating climate change and achieving high-quality development. It will help to achieve the goals for peaking carbon dioxide emissions and achieving carbon neutrality to the best of its ability, and contribute Ansteel's wisdom and strength to combating climate change.

Dealing with climate risks

The Company has actively identified the new challenges and risks caused by climate change to its operation and development, and clarified relevant financial impacts in combating climate change. Besides, it has taken measures actively in relevant business sectors, and made resolute decisions to respond to the impacts of climate change.

Identification of Climate Change Risks and Angang Steel's Response			
Risk type	Relevant risks caused by climate change	Relevant financial impacts	Response measures
Transition risks	Policy risks and legal risks <ul style="list-style-type: none">The State Council issued the <i>Guiding Opinions of the State Council on Accelerating the Establishment of a Sound Economic System with Green, Low-carbon and Circular Development</i>, <i>Action Plan for Carbon Dioxide Peaking Before 2030</i>, and <i>Responding to Climate Change: China's Policies and Actions</i>, providing that enterprises should peak carbon dioxide emissions in the steel industry, phase out outdated production capacity, and that relevant regulatory authorities should intensify regulation of environmental impacts and energy conservation & emission reduction measures of enterprises.The enterprise whose discharge and disposal modes of wastewater, waste gas, and solid waste cannot meet the currently valid national standards may receive the notification and punishments of the government.	<ul style="list-style-type: none">Increase in credit risksIncrease in environmental compliance costReduction of production capacity	<ul style="list-style-type: none">Conduct pollution control and treatmentEstablish low carbon plans and route maps
	Technical risks <ul style="list-style-type: none">Facing the supervision pressure and trend of the era, the investment in research & development of low-carbon technology and equipment needs to be increased.	<ul style="list-style-type: none">Increase in technical R&D costIncrease in production cost	<ul style="list-style-type: none">Develop more carbon reduction technologies through enhanced cooperation among enterprises, universities, research institutes, and consumers
	Market risks <ul style="list-style-type: none">Climate change may cause the increase in coking coal price, energy consumption expense, logistics and transport, as a result of which, the steel production cost and price may be increased, reducing the profit margin.Clients may have preference to more environmental friendly substitutes. If Angang Steel fails to provide lower energy-dissipating steel products, it will be confronted with the risks of loss of clients and reduction of business demands.	<ul style="list-style-type: none">Reduction of operating revenues	<ul style="list-style-type: none">Produce more environmental friendly products with lower energy consumption
	Brand or reputation risks <ul style="list-style-type: none">Against the background of green development and carbon dioxide peaking and carbon neutrality, stakeholders may put forward higher requirements for information disclosure and management in terms of combating climate change. If Angang Steel cannot meet these requirements, its reputation will be damaged.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">Reduction of operating revenuesPressure from public opinions	<ul style="list-style-type: none">Shut down outdated production facilitiesStrengthen environmental management, make environmental emergency plans, and avoid environmental accidentsCooperate 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
Practical risks	Acute risks <ul style="list-style-type: none">♦ 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, affecting 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.♦ Failure to ensure the employee's safety and work safety in extreme weather will cause legal disputes and economic losses to the Company.♦ Employee's work efficiency may decline under extreme weathers.	<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	<ul style="list-style-type: none">♦ Establish safety emergency plans and extreme weather response plans♦ Cooperate with the suppliers that can respond actively to climate change risks to improve the overall risk resistance capacity of the supply chain
	Chronic risks <ul style="list-style-type: none">♦ Long-term environmental changes such as temperature rise may easily cause the increase in the power consumption of steel manufacturing and the increase in energy consumption expense.♦ Continual high temperature may cause the increase in power and energy use in the office.♦ Long-term environmental changes (such as continuous high temperature and rise of sea level) can easily affect the shipping time, and cause postponement in transport, or affect exports.	<ul style="list-style-type: none">♦ Increase in the production cost♦ Increase in the operating cost	<ul style="list-style-type: none">♦ Carry out technical R&D to reduce the cost and energy consumption

Focusing on carbon dioxide peaking and carbon neutrality

Call of policies

“The industrial domain is one of the primary sources of carbon dioxide emissions, and therefore exerts an important impact on China’s efforts to peak overall carbon dioxide emissions. Industry must accelerate high-quality development and the green and low-carbon transition, and strive to take the lead in peaking carbon dioxide emissions. Push the steel industry to peak carbon dioxide emissions, deepen supply-side structural reform in the steel industry, rigorously execute production capacity replacement, strictly prohibit additional production capacity, push for the optimization of existing capacity, and retire outdated capacity.”

Action Plan for Carbon Dioxide Peaking Before 2030, issued by the State Council

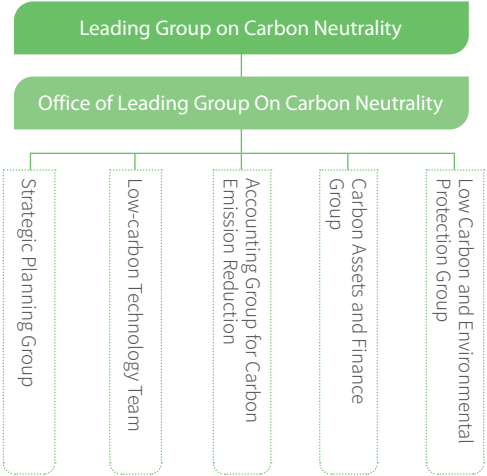
The Company has actively responded to the goal of "carbon dioxide peaking and carbon neutrality". It has made plans in advance and established the Carbon Emission Management & Control Plan in a scientific way. Besides, it has accelerated the establishment of the top level design for low-carbon transition and development, developed the route map for low-carbon metallurgy, and actively controlled the greenhouse gas emissions in the industrial process. It is committed to make continual efforts for the reduction of carbon dioxide and response to climate change.

Establishing the low-carbon plan

The Company has continued following up the policies and relevant systems for peaking carbon dioxide emissions and achieving carbon neutrality. It has a full understanding of the carbon trading rules and development trend of the steel industry. Under this context, it has established the work plan for peaking carbon dioxide emissions and achieving carbon neutrality, where it clarifies the requirements and implementation mechanism for low-carbon transition, laying a foundation for achieving the goal of carbon dioxide peaking and carbon neutrality.

Setting up a leading group

The Company set up the Leading Group on Carbon Neutrality. The leading group has an office of leading group on carbon neutrality under which 5 functional groups are set up, namely, the Strategic Planning Group, Low-carbon Technology Team, Accounting Group for Carbon Emission Reduction, Carbon Assets and Finance Group, and Low Carbon and Environmental Protection Group. The leading group is responsible for establishing special work plans, and organizing internal and external experts to push for carbon emission reduction in the business area, including low-carbon development, so as to provide organizational guarantee for the Company's low-carbon development.



Organizational structure of the Leading Group on Carbon Neutrality

Clarifying the low-carbon route map

The Company has made an analysis of its basic carbon emission data, and established its low-carbon route map according to the 14th Five-year Plan. In this map, it predicted the time for achieving carbon neutrality, and made a systematic analysis of its potential of carbon emission reduction from the aspects of process and enterprise boundary.



Reducing greenhouse gas emissions

The Company has had a full understanding of the links in which greenhouse gases are produced in the industrial process. It has implemented 85 low-carbon campaigns and environmental renovation projects through substitution of materials, improvement of manufacturing techniques and use of improved equipment to actively control the greenhouse gas emissions in industrial production and achieve green and low-carbon development.

Main links of greenhouse gas emissions				
Coke oven	Sintering machine	Blast furnace	Converter	Mill train

Indicator	2020	2021
Total amount of greenhouse gas emissions: direct (Scope 1) emissions (ton of carbon dioxide equivalent) (tco ₂)	43913259	Data of carbon emissions in 2021 are not audited by a third party, so this report only discloses information regarding carbon dioxide emissions of three bases in 2020.
Total amount of greenhouse gas emissions: indirect (Scope 2) emissions of energy (ton of carbon dioxide equivalent) (tco ₂)	6183158	
Greenhouse gas emission density (per ton steel) (tco ₂ /crude steel)	1.89	

Joint conservation of nature

Angang Steel has always insisting on the fundamental principles of ecosystem first and systematic protection. It has organized assessment and monitoring of current underground water and soil situation, built a garden-like plant area, and provided support for the treatment of desertified land and improvement of the quality and stability of natural ecosystem, so as to supply a good living space and ecological environment for biodiversity conservation.



» Garden-like plant area of Bayuquan Branch

Case Strengthen greening in the plant area

The Company has paid special attention to the landscape engineering of the landscape line composed of Zhongyang Avenue, Linai Avenue, Xinai Avenue, and Hemu Avenue, and improved the greening level of the landscape areas including the front gate area, Coking Plant, Steelmaking Plant, and Hot Strip Plant. It has also planted the protection forest in Lingshan stock yard and Energy Management & Control Center. In 2021, the Company planted 16,874 trees, 1,027,664 shrubs, 186,050 vines, 219,930 flowers, 8,000 m² lawn, and 387,000 m² grass, with a green coverage ratio of 40.5%. This has increased the forest carbon sinks while improving the environment.



» Greening and beautification of the plant area

Case Lovely animals in the plant

While ensuring the high quality production and operation, the Company also pays attention to the respect, adaptation and protection of nature. It has strengthened biodiversity conservation, and built a pond ecosystem and garden-like green plant in which people seek for the unity with nature and observe the law of nature. It has provided a harmonious and symbiotic living environment for the animals in the plant area such as geese and sika deer, and promoted the symbiotic relationship between green steel and these lovely animals.



» Sika deer and geese in a pond inside the plant area

Case Boost the revival of the beautiful rural ecosystem

Ta County is located in the southwest of Xinjiang, with an average altitude of more than 4,000 m. It, equipped with vast gobi which is barren, is a key county under the state program of poverty alleviation through development. The Company has input a great deal of human power and material resources to level the ground in Ta County. To be specific, it has purchased agricultural machinery, seeds, fertilizers and other materials, and planted 3,850 mu (about 634.27 acres) of highland barley and grass, turning the desert into a green land. While helping Ta County overcome poverty and achieve prosperity, it also improves the local ecological environment and promotes the sustainable and green development.



» Studying desert treatment and planting to turn it into an oasis



Harmonious Society

Opportunities and challenges

Against the background that China is implementing the strategy on developing a quality workforce in the new era, the steel industry has entered an important period of transformation and upgrading. Some high-caliber talents that can shoulder the heavy responsibility of transformation and upgrading in the steel industry are urgently needed. In the digital economy era, steel enterprises need to work hand in hand with partners to build a strong "high-tech great wall for steel engineering", and provide more creditable high quality products and services for the steel industry and relevant industries.

Our actions

Angang Steel always adheres to the philosophy that "a large-scale enterprise should shoulder heavier responsibilities". It provides each employee with equal and diversified employment opportunities and the stage for them to realize their values, and offer customers high-quality products and services by virtue of a sound quality management system and customer service system. Angang Steel deepens intelligent manufacturing, takes the lead in innovating technologies and works hand in hand with its partners to establish a sustainable development industry chain. All in all, it tries to develop itself into a well-respected corporate citizen that can create values constantly.

Our achievements

The coverage of training to employees reached **100%**.
The investment in research & development reached RMB **5.8316** billion.
The fund for offering assistance mounted up to RMB **15.596** million.

Sincerity and inspiration

Angang Steel adheres to the philosophy to put people first and creates an equal, equitable and fair work environment for employees. It provides a development platform with excellent resources and good market prospects, and builds an active, healthy, diversified and inclusive workplace, so that employees can grow in happiness.

Basic rights and interests

The Company strictly abides by China's *Labor Law*, *Labor Contract Law* and other relevant laws and regulations, and insists on the equal employment policy and the principle of anti-discrimination to provide each employee with equal employment opportunities and guarantees employee's lawful rights and interests. In 2021, the total number of employees in the Company reached 30,412.

Equal employment opportunity

- Establishes the *Measures for Management of Labor Contract and Measures for Administration of Working Hours and Vacations of Employees* to specify employees' working hours, rest and vacations, salary and welfare, and other rights and obligations, as well as rescission of labor contract and termination of clauses, and guarantee employees' lawful rights and interests. In 2021, the labor contract signing rate reached 100%.
- The original and copies of ID card are strictly checked during employment, and no child labors are employed. No labourers are forced to work.

Women's rights and interests

- Implement the *Special Collective Contracts for Protecting Female Employees' Rights*; strictly enforce the *Regulations Concerning the Labor Protection of Female Staff and Workers*; provide equal chances to both men and women in terms of equal pay for equal work, vocational education, technical training, promotion, and participation in democratic management of enterprises; protect the rights and interests of female staff and workers.

Salary and welfare

- Improve the salary management system and remuneration determination mechanism, carry out the post performance management covering all the staff, and improve the long-medium term incentive mechanism.
- Pay the insurance premiums in full amount and on schedule with laws and regulations, implement the enterprise annuity plan; develop the "enterprise aid liability insurance"; form 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".
- Employees have access to the annual vacation with pay, family reunion leave, marriage or funeral leaves, and maternity leave in accordance with the law and are able to draw the welfare expenses according to requirements.

Democratic management

- Implement the collective negotiation and collective contract system; continuously improve the democratic management system with the meeting of workers' representative as the basic form; collect opinions on the resolutions relating to the immediate interests of staff in advance, give feedback timely, and decide on the resolutions finally by ballot.
- Protect the smooth communications of staff; widen the ways for publicizing factory affairs. The Company has 100% rate of reply to the proposals of worker's representative.
- Listen to employees' suggestions and appeals and answer employees' questions through the open day for democratic management, leader contact system, regular symposiums between officials and the public, inspections from workers' representatives, and democratic appraisal on the leadership team.

key performance

- The proportion for employing local employees was **67.20%**.
- The proportion of full-time employees reaches **100%**.
- The number of new employees was **218**.
- The proportion of female managers was **5.10%**.

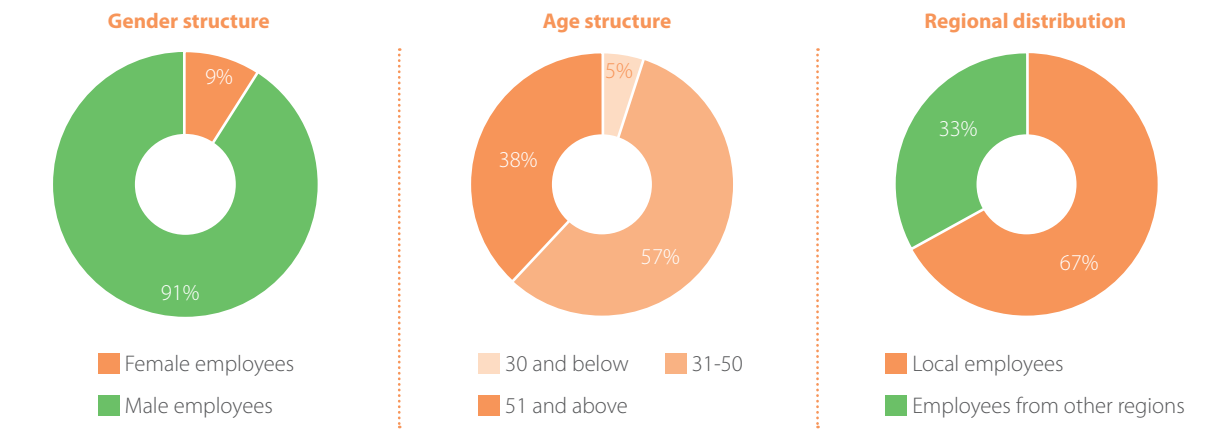
The employee satisfaction score was **4.1** points (5-point scale).

- The employee turnover rate was **0.81%**.

Employee turnover by gender	The male employee turnover rate was 0.11% .	The female employee turnover rate was 8.05% .	
Employee turnover by age	The turnover rate for employees aged 30 and below was 4.43% .	The turnover rate for employees aged 30-50 was 0.83% .	The turnover rate for employees aged 50 and over was 0.35% .
Employee turnover by region	The local employee turnover rate was 0.86% .	The employee from other regions turnover rate was 0.70% .	

Diversification and inclusiveness

The Company insists on the diversified employment policies, promotes diversified and rational distribution of talents, and works continuously to improve the employee care system to create a comfortable, diverse and inclusive work environment for employees.



key performance

- The fund for helping needy workers mounted up to RMB **8.91** million.

Showing loving care for front line workers

- The Company provides special care for employees in summer. It has purchased heatstroke prevention products and potables for the front-line staff and workers working in a high temperature environment to protect their safety and health rights and interests.

Caring for female employees

- The Company carries out extensive surveys of gynecological diseases and breast diseases of female workers. The rate of special physical examinations and extensive surveys of female workers reached 100%; as a result, the incidence of gynecological cancers of female employees is reduced.
- The Company has provided health insurance for 2,502 female workers collectively, and 1 female worker received compensation of RMB 60,000 from this insurance.
- The Company held Women's Day activities and provided exclusive welfare and blessings for female employees.

Offering aid to the needy workers

- The Company has purchased enterprise aid liability insurance for its staff to reduce the rate of poverty of the workers with serious diseases. Throughout the year, it offered aid to 75 workers who received compensation of RMB 6 million. It offered RMB 2.3271 million as the medical relief fund and helped 398 persons out of their difficulties.
- The Company encourages employees to partner with and assist, the needy workers on file. As a result, there were 75 partners with "one-on-one assistance" and 64 partners with "all-to-one assistance" in the Company, which ensured that all needy workers had access to the assistance. It also widened the channel for offering aid, and applied for a government aid fund of RMB 175,000 for the national-level needy workers.
- The Company also carries out the student aid activities in fall. It contributed RMB 377,500 and helped 479 persons, which solved the urgent problems of needy workers for their children to go to school normally.
- The Company carries out care for employee activities. It has visited 13,700 needy workers and retirees, and provided a relief expense of RMB 6.03 million, accompanying the needy workers with love.



» Art performance at the 100th anniversary of the founding of the CPC



» Guessing riddles



» Volleyball match



» Group mountain-climbing



» Six-person football match



» Interesting activity in mountain climbing - Transfer of Love

Employee's health and safety

key performance

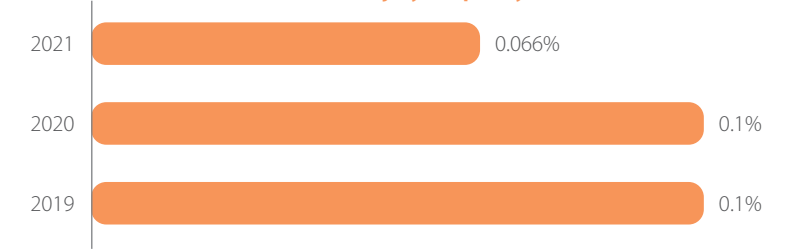
In 2021

- We invested RMB **124.32** million for health and safety protection.
- Obtained the accreditation of ISO 45001 occupational health and safety management system.
- The coverage of safety training to employees reached **100%**.

The Company attaches great importance to employees' occupational health and safety, 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, improve the occupational health and safety management system to create a secure workplace for employees and protect their health and safety. In 2021, the number of working days lost owing to work injuries reached 6,260. and A work-related fatality accident occurred*.

Note: On June 8, 2021, a work-related death accident occurred in the company's cold rolling plant. The company immediately organized all units to conduct a comprehensive investigation and rectification, and strictly implemented the rectification measures to avoid the recurrence of production safety accidents.

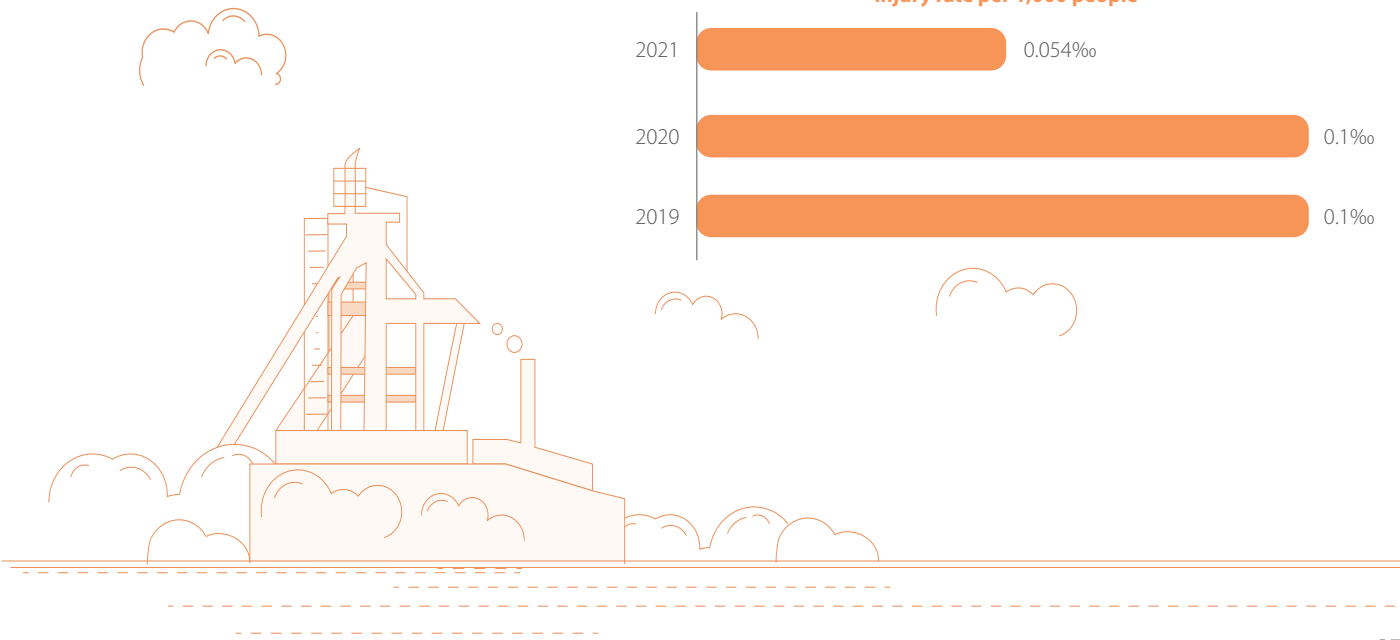
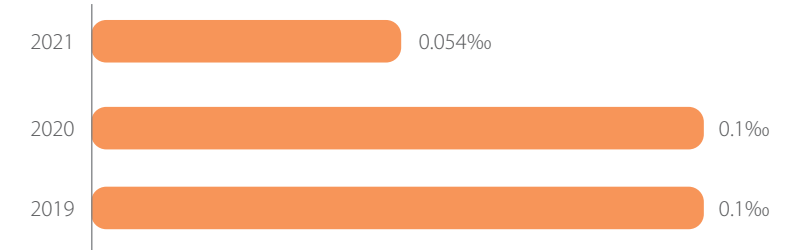
Total Recordable Injury Frequency Rate (TRIFR)



Significant Incident Frequency Rate per million hours



Injury rate per 1,000 people



Protection against occupational hazards

- ◆ Detect occupational hazard factors and organize periodic physical examinations for all staff.
- ◆ Perfect the protective measures for occupational hazards and provide emergency devices; improve the technology and add isolating devices; equip staff with labor protection appliances according to standard.

Identification of safety risks

- ◆ Seek out and remove hidden hazards and dangers in all production departments; identify all hazard sources; find and eliminate the risks in manufacturing techniques, equipment and facilities; ask the employees to shoulder the responsibility for safety risk management & control level by level and ensure that the safety risks are well controlled.
- ◆ Establish a dual prevention mechanism; build a standardized system for work safety; invite third-party organizations for onsite diagnoses to prevent safety risks.
- ◆ Establish "0123" smart safety management platform, develop the mobile terminal APP and follow up hazard investigation and treatment in the whole process.

Health and safety education

- ◆ Hold online and offline safety education and training for all employees periodically; strengthen the warning education, training and publicity of cases and standards and norms; encourage and guide employees to learn safety knowledge and skills actively.
- ◆ Organize managers at all levels to learn the latest edition of the *Law of the People's Republic of China on Work Safety, and Amendment (IX) to the Criminal Law* to create an atmosphere of ensuring public security in accordance with the law.

Improvement of the emergency response capability

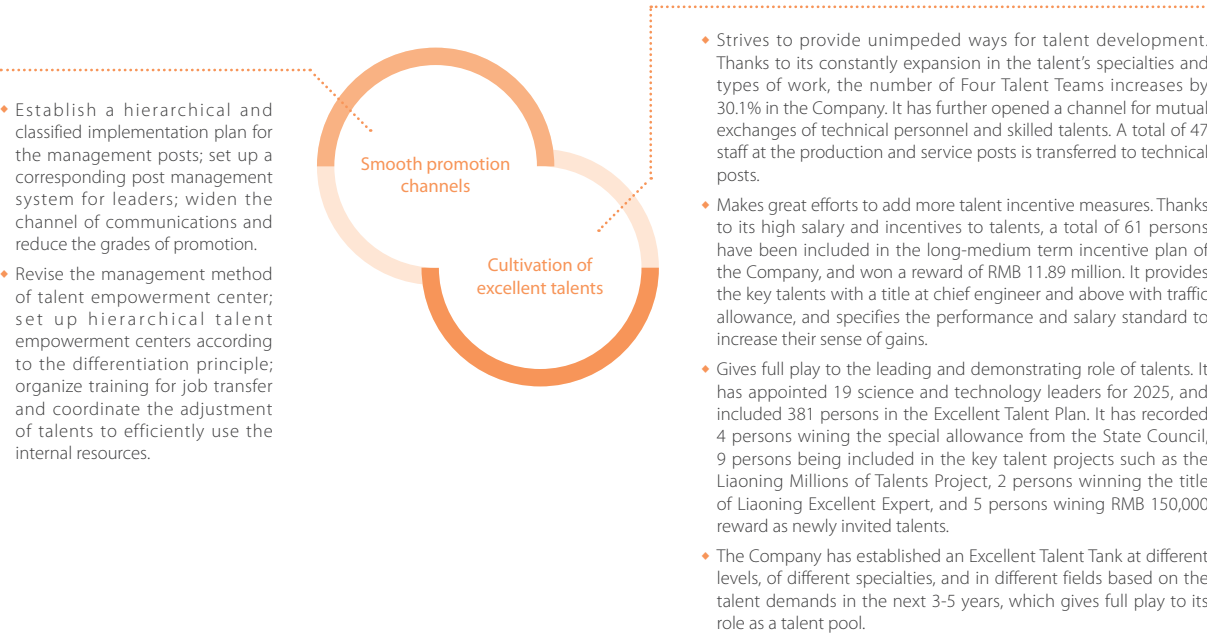
- ◆ Revise and improve the comprehensive emergency response plans, special plans, and onsite treatment plans for workplace safety at all levels, and ensure that an onsite treatment card is available for all posts relating to hazardous chemicals, major hazard sources, and serious and great safety risks.
- ◆ Organize comprehensive emergency drills and special drills at all levels, and update and provide advanced equipment and appliances to improve the emergency response capability.

Vast development platform

The Company has set up a smooth talent promotion mechanism to ensure the orderly and rational transfer and distribution of talents. It has also improved the personnel training system, which enables employees to bring their talent into play on the stage set up by Ansteel.

Talent selection

The Company has established a comprehensive post management system, and sorted out the posts in an all-around way in the whole process based on a comparison with the advanced enterprises in the same industry. It has also defined a post promotion diagram to ensure the smooth career development of employees.



Multiple refinements

Angang Steel has upheld the new development philosophy, and built its responsible brand image with high quality products and considerate services. By focusing on the future, it has strived to develop a smart Ansteel and strengthen technology innovation, so as to contribute to the high-quality development of a new Ansteel, and guide the steel industry to achieve joint sustainable development.

Excellent product quality

The Company has continued improving the quality management system, strengthened supervision and management & control of product quality, and raised the quality awareness of all the staff to avoid quality risks and build a world brand image with high quality products. In 2021, the Company has never been forced to recall sold or delivered products due to safety and health problems.

key performance

- The comprehensive yield rate of steel products was **93.97%**
- The yield rate of steel materials was **94.95%**

Conducting risk assessment

- Evaluate the product quality risks according to the severity of risks, test method and possibility of quality problems, form a contingency plan, and identify and control the risks in production that can affect the product quality and delivery.

Strengthening quality management & control

- Incorporate the comprehensive yield rate of steel products and relevant indicators into the Company's monthly assessment of core management & control items, urge the manufacturing plants to tackle the key problems affecting the yield rate and make continual improvements to improve product quality.

Improving quality supervision

- Focus on typical problems such as customer complaints and quality accidents, conduct quality supervision according to the key evaluation factors such as process and quality management, and quality problem-solving management, organize corrections, and control key quality problems. In 2021, the comprehensive yield rate of steel products was 93.97%, and the yield rate of steel materials was 94.95%.

Promoting quality authentication

- The Company has finished the CE accreditation and certificate renewal of medium plates, as well as the overseas quality authentication such as Japan JIS accreditation and certificate renewal of wire rods, cold-rolled products, Bayuquan Branch's hot-rolled products, and thick plates. It has also passed the domestic accreditation such as CRCC annual accreditation of heavy rails and new hot-rolled corrosion-resistant steel products for vehicles. Three products including cold-rolled low-carbon steel and hot-rolled automobile beam steel were submitted for the title of High Quality Products of 2021 Annual Golden Cup for Metallurgical Product Quality and Brand Cultivation.

key performance

Through conducting the quality month activity,

- More than **1,400** rational proposals were collected.
- 144** quality systems were improved.
- More than **8,500** persons participated in the quality knowledge contest.
- Trainings on technology and quality publicity & implementation were organized for more than **1,100** persons.
- Measures were taken for solving **164** key problems that can affect product quality.

 Case

Development of heat-treated rail products in series reaches a new level

The quality management project of the Rolling Department of Bayuquan Branch, "Application of Six Sigma in Improving the Quality of Non-oriented Silicon Hot Rolled Strip", won the Six Sigma Excellent Project of China Quality Technical Award in 2020.

The Company has made intensive efforts on the study of on-line heat treatment technology of rails with a focus on the quality requirements of high-end rails and the world most advanced heat-treated rail manufacturing techniques and technologies, so as to improve the rail hardness and strength. With such efforts, the hardness, through-quenching layer, and uniformity of rails have all reached an international advanced level. In January 2021, the Company's U71MnG online heat-treated rail passed the test of China Railway Test & Certification Center, marking that it has made a solid step in the development of heat-treated rail products in series.

Considerate customer services

By taking customer demands as a start point and customer satisfaction as an end point, the Company has established diversified communication channels to timely know about customers' demands and feedback of products and services, and provide customers with considerate services.

Service system

The Company has established a one-stop three-level service system with the five elements of QCDDS as the core. It has put forward the high-quality strategy of "products + services", established standardized product sales and marketing strategies, responded to customer demands fast, and provided customers with individualized, efficient, and specialized solutions to solve their problems effectively. In 2021, the Company records a customer satisfaction rate of 95.23%.

Precise management

- Collect customer information; classify customers according to their characteristics and conduct dynamic management; establish differentiated service strategies from QCDDS for different categories; improve the service standard and upgrade customer experience.

Efficient feedback

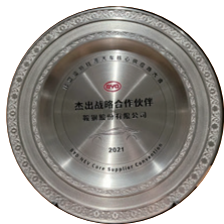
- Timely and carefully organize the sales departments to establish their monthly visit plan, and conduct follow-up management and evaluation of the visits to customers to provide proper customer services in time.
- Conduct two customer satisfaction investigations to timely know about customers' feedback on its steel products and services, and improve the product quality and service level with a clear target.
- Delegate the right to complaint handling to branches to improve the treatment efficiency, shorten the treatment period, and improve the customer satisfaction. In 2021, the rate of solving customer complaints reached 100%.

Smart services

- Establish the on-line smart service platform to realize the closed-loop management for handling objections from acceptance of user complaints to internal correction and implementation, and further extend it to the key user side, and realize the real-time inquiry and treatment of cross-region on-line user objections so as to provide customers with an efficient and smart service model.

Case A good strategic partner of customers

At BYD HEV Core Supplier Convention in 2021, the Company won the award of BYD "Good Strategic Partner", becoming the only enterprise having won this award among all automobile steel suppliers. In the recent two years, the Company has provided vigorous supports for BYD's new energy development: it has actively developed and introduced new products and technologies, and offered localized distribution services for all production bases of BYD to promote the continual and steady increase in the amount of supply to BYD. Its products and services have been highly recognized by BYD.



» Angang Steel won the award of Good Strategic Partner of BYD

Privacy safety

The customer information can only be used and managed by authorized employees. Besides, without the consent of customers, such information is not allowed to be disclosed to any third party. In 2021, there was no leakage of customer's privacy.

Responsible marketing

The Company strictly abides 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*, and discloses information about the product technology, quality and functions truly and properly. It strengthens publicity and education, raises employees' brand awareness, and provides customers with true product information to meet their demands.

Deepening intelligent manufacturing

key performance

- The Company invested RMB **943** million for IT-related and intelligent fixed assets.

The Company has actively implemented the IT-based development planning during the 14th five-year plan period to speed up the development of a Smart Ansteel. It has strived to realize "standard warehouse building, smart logistics equipment, normalized service system, and IT-based warehousing management" through intelligent operation and intelligent plant building. Besides, it has organized all production bases to transform the intelligent production lines, and promoted integration of intellectual technology and metallurgy science, application of intelligent equipment, and recreation of process flow, with an aim to make the production process stable, efficient, and optimally controlled, and provide better quality, higher efficiency at a lower cost.

Case Integrated smart operation management & control system is put into operation in Anshan Headquarters Base

The Company started its building of the integrated smart operation management & control system. The system covers three places (Anshan Headquarters Base, Chaoyang Base and Bayuquan Base), and nine major business fields, and consists of more than 300 sub-systems. With such a scale and degree of difficulty, it is a creative move in the steel industry, and even in the whole country. It will considerably improve the Company's core competitiveness of "manufacturing + service". At the end of 2021, this system was put into operation in Anshan Headquarters Base, Chaoyang Base and Bayuquan Base respectively, marking that they have established a new management model that is unified in the base and coordinated between bases with integration of production and sales, of management and control and of financial data and businesses.



Case Jointly establish a pilot area for unified application of "5G+ Industrial Internet"

In order to accelerate the building of a smart Ansteel, the Company has cooperated with China Mobile Group Liaoning Co., Ltd. and set the pilot area for the unified application of "5G+ Industrial Internet" in Bayuquan Branch. This has built a high-quality exquisite 5G industrial network in a leading position in domestic China. The Internet supports some core applications in production such as smart melted iron transportation, unmanned driving inside the plate blank storage and steel coil storage, etc. Meanwhile, the Internet can realize video backhaul, quality detection on strip steel surface, AR remote assistance and other 5G smart applications in the steel industry. It has promoted the further application of "5G+ Industrial Internet" in the steel field.

Taking the lead in technology innovation

key performance

- In 2021, the investment in research & development reached RMB **5.8316** billion.

The Company has deepened the reform of the system for managing science and technology, and diversified the toolkits for stimulating benefit creation based on science and technology. It has built the platforms for making technological breakthroughs, gathered new forces for production, education, research and innovation, and actively undertaken national important research & development projects. It has also implemented the innovation project in personnel training, with an aim to set up an innovation and benefit creation team composed of top-grade professionals. Moreover, it has kept injecting new dynamism into innovation-driven development, and steered the course to the future with scientific & technological innovation.

Improving the scientific & technological innovation mechanism

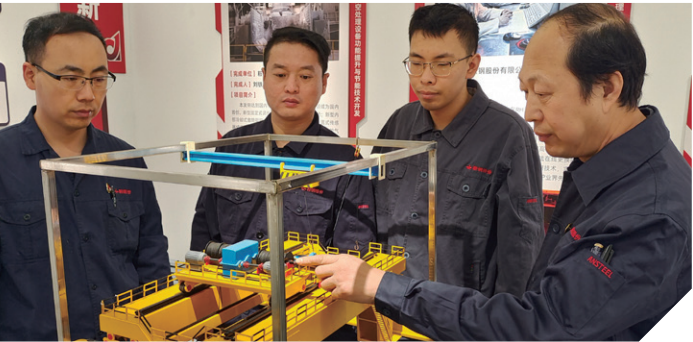
The Company has improved its management of scientific & technological plans, and released new incentive policies for scientific & technological innovation. It has also explored new models for managing research project, so as to lay a foundation for fully leveraging the supporting role of leading technology in product distribution.

Optimizing scientific & technological innovation management

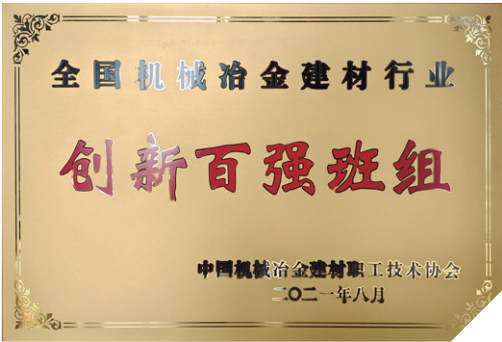
- The Company prepared the program for promoting scientific & technological innovation for the years 2021 and 2022, and formed the program for undertaking 232 subjects in 30 fields.
- It established incentive measures and methods for stimulating scientific & technological innovation and evaluating the science and technology awards, and provided more incentive measures to stimulate innovative vigor.

Innovating the R&D management & control model

- Centering on the technical difficulties and obstructions urgently needing to be eliminated, the Company has implemented the open competition mechanisms to select the best candidates to lead the research project. In this regard, the Company has set the goals and indicators of the research project and selected the best leader for the research project through competition. It has granted the candidates with the right to approve team building, approval of scientific research projects, research & development expenditures, external cooperation and exchanges, as well as the right to evaluate performance and distribute reward of team members, and created a new model for managing research projects.
- Major technological breakthroughs have been made in five projects implemented through open competitions in 2021, including the Technical Research Project of Large and Thick-walled Pipeline Steel in Extreme Service Environment and the R&D, Demonstration and Application Project of High-Performance Bridge Steel.



» Team members study the innovation project



» Angang Steel wins the title of "Top 100 Innovative Teams" in the national machinery, metallurgy and building materials industries

Building a scientific & technological innovation platform

With skilled master workstations and the platform for cooperation among enterprises, universities, research institutes, and consumers as carriers, the Company has made full efforts to carry out technological breakthroughs, and developed high-level projects to promote the enterprise's high-quality development with science and technology.

Establishing skilled master workstations

- Make technological breakthroughs with skilled master workstations as an important carrier. By the end of 2021, nine skilled master workstations had been established. In 2021, 2,450 technical innovation projects were carried out.

Building the platform for cooperation among enterprises, universities, research institutes, and consumers

- Give full play to the role as the national key laboratory and the role of Ansteel-Northeastern University Research Institute for Advanced Material Engineering; establish a long-term mechanism for cooperation among enterprises, universities, research institutes, and consumers; strive to bring about a new pattern of "development, cooperation, and sharing" with key universities and research institutes; make plans for and develop some high-level projects in, peaking carbon dioxide emissions and achieving carbon neutrality.
- Cooperate with University of Science and Technology Beijing, Shanghai University, Central Iron & Steel Research Institute, Institute of Metal Research, Chinese Academy of Sciences, and Fudan University for technical development.
- Set up six substantial university-enterprise alliances with the national key laboratory as carriers, enterprises as leaders and universities and consumers as members, including the University-Enterprise Alliance of Steel for Maritime Work.



» Liu Tie Innovation Office

Diversifying the scientific & technological innovation outcomes

key performance

- The Company won **1** first prize and **2** second prizes of Metallurgical Science and Technology Award.

The Company has actively undertaken the national key technology and material research projects, and developed core technologies. It has also participated in the preparation and revision of international, national and industrial standards, which shows its sense of responsibility for serving China's strategic development and ensuring the safety of the supply chain and industry chain.

Participating in national major projects

- The national key R&D project named as High-strength Pipeline Steel under the Low-temperature and High-pressure Work Conditions, which is led by the Company, has passed the comprehensive performance evaluation.
- The strong foundation project for industry development named as Steel for Polar Ships Used in Low-temperature Extreme Environment which is led by the Company has passed the acceptance.
- The Company has applied for the Al-Si Coated Thermoforming Steel project of the Ministry of Industry and Information Technology, and 7 research topics.
- Four product series, including the Crack arrest steel for large container ships (EH40/EH47) have been included in the *Recommendations of Scientific & Technological Innovation of Central Enterprises (2020)*.

Carrying out standardization tasks

- The WD draft of an international standard - ISO 630-5 *Structural Steels-Part 5: Technical Delivery Conditions for Structural Steels with Improved Atmospheric Corrosion Resistance* has passed the review.
- The Company has participated in the preparation and revision of 47 national, industrial and group standards, including the *Ship and Ocean Engineering Structural Steel*, among which, 12 standards have passed the review, including the *Ship and Ocean Engineering Structural Steel*.
- The Company has verified and released 58 foreign standards and 16 national and industrial standards, and finished the preparation and revision of 320 company standards and 162 technical specifications.

Training scientific & technological innovation talents

The Company implements the innovation-driven development projects, continually deepens its Youth Innovation and Growth Plan, and actively trains young scientific and technological innovation talents. It is aimed to foster and develop new dynamism via the driving forces of talents.

Personnel training platform

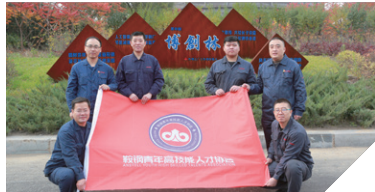
- The Company established the first youth innovation office and practice base of Ansteel Group.
- The Company ran Ansteel Young Skilled Talents Association for a trial and recruited 161 members in the fields of steelmaking, continuous casting, machinery and electrics, and held 12 technical skill practices concerning welding, robots and hydraulics, with over 310 participants.
- It has continuously held courses for creators and designed company-level courses for creators and trainings on the application of innovation achievements of the youth, from which more than 130 young people benefit directly. The community-level youth league organizations have held 399 courses for creators, with 3,862 participants.

Talent selection mechanism

- The Company has selected 20 leading personnel, 55 top-grade talents and 308 high caliber core personnel in the "Excellent Talent Plan" of Ansteel Group. It held the advanced seminar on the improvement and application of smart manufacturing technology in the steel industry under the "Excellent Talent Plan of Ansteel Group" according to its development requirements, and organized training for 70 persons.



» Youth innovation and growth plan



» Young Skilled Talent Association



» Youth Innovation Office

key performance

- 3,277** proprietary intellectual property rights
- 592** new domestic patent applications
- Including **379** patents of invention and **3** overseas PCT patents
- 532** new licensed patents

Intellectual property protection

The Company has carried out an intellectual property strategy of "attaching equal importance to both quality and quantity and focusing on core ones". It has established a patent application and protection system and a sound patent management system according to the state strategy concerning intellectual property rights and its actual conditions, and provided a systematic foundation and basis for protecting intellectual property.

Providing fund guarantee for intellectual property

- Establish the patent application plans on schedule, and allocate special funds for patent application, maintenance and protection.

Establishing the intellectual property warning system

- Find, avoid, prevent and reduce the potential intellectual property risks in technology innovation; optimize the layout of patented technology; highlight the value oriented function of intellectual property and improve the quality of intellectual property.

Building an intellectual property training mechanism

- Establish a long lasting intellectual property training mechanism, and organize training to employees on intellectual property by means of special training on intellectual property and expert lectures to strengthen the development of intellectual property talents and teams.

At 2021 Brand and Quality Development Conference of the Steel Industry (the first conference), the Company won the title of Excellent Brand of Standardization and the title of Excellent Brand of Intellectual Property.

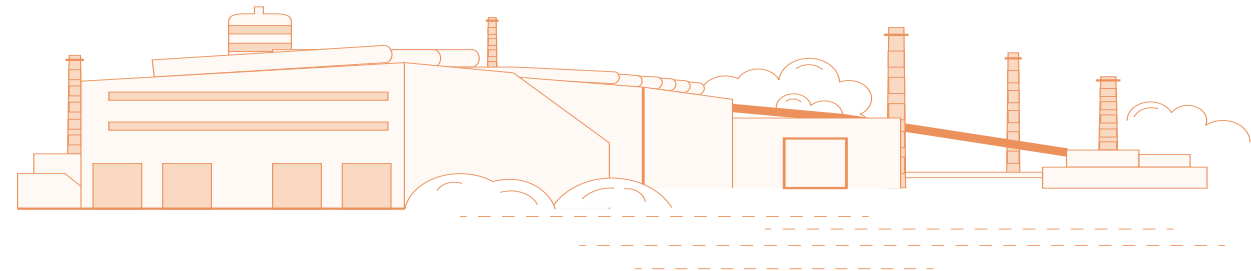
In 2020, the list of authorized patent for invention of Chinese enterprises (TOP100) was released. The Company ranked 71st in the list with 272 authorized patents for invention, 1st place in the steel industry.

Cooperation with partners

Angang Steel has maintained the supply chain ecology and established a smart and efficient logistics development model. It has also cooperated with suppliers to form a responsible supply chain so as to promote the symbiotic development of the industry.

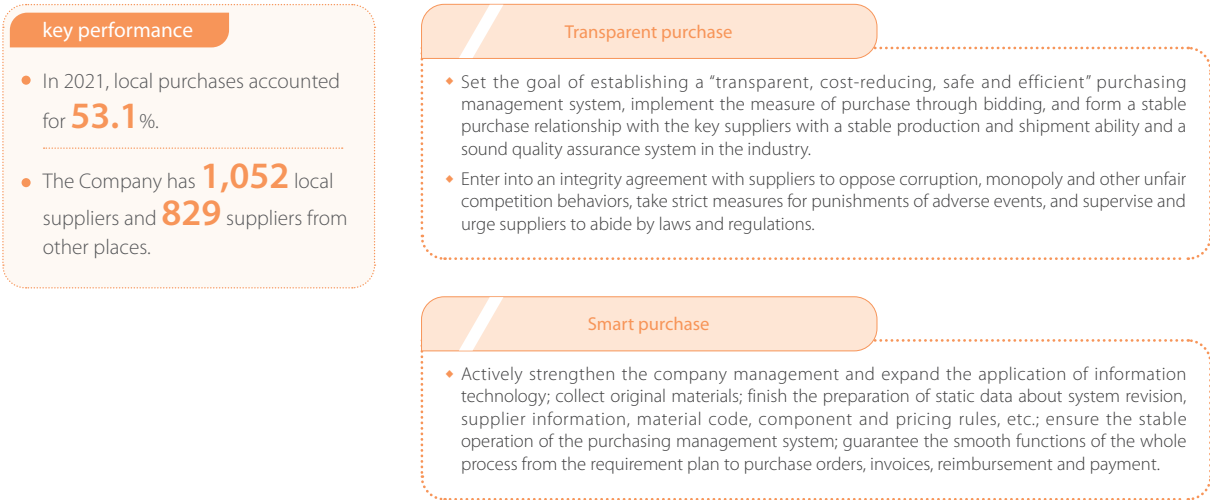
Responsible supply chain

The Company has established a sound supplier admission and withdrawal mechanism. It manages the supplier admission, evaluation and withdrawal systematically in accordance with *RBA Code of Conduct*, SA8000 standards and national standards to strengthen supplier management and promote the building of a high-quality industrial ecosystem with a responsible supply chain.



Responsible purchase

The Company has incorporated the philosophy of sustainable development in each link of the supply chain, including purchase of crude fuel, equipment and materials, etc. It has also carried out transparent and smart purchase, and promoted the building of an equal, fair, open, and efficient supply chain with transparent and information-based management.



Smart logistics



The Company has established an intensive, reduced and customer-oriented service philosophy for the logistics in the steel industry. It has improved the new mechanism in which the supply chain logistics is in the service of production and customers, and created a smart logistics development model to provide smart logistics services for the modernized production of steel enterprises.

The Company has ushered in a new era for building a logistics system based on the building of an integrated platform for smart operation, and preliminarily formed an efficient and coordinated logistics management platform with multiple systems and bases. It has further strengthened the ability for controlling logistics resources, and established a transparent, dynamic and real-time logistics system.

Case Automatic drive promotes smart logistics

In 2021, the automatic driving system for FAD-type freight station was formally put into operation at Fantun Station of the Logistics and Transportation Department of Bayuquan Branch, marking that the station has become the first unmanned railway freight marshaling station at home. Against the complicated transportation conditions at the railway yard, it realizes the goal of "unmanned operation" based on highly integrated automation, application of information technology, and digitalization. It can realize the smart admission and travelling, and finish the transportation tasks at the railway yard safely and efficiently, which provides invaluable experience for the smart development of relevant industries relating to rail transport, including railway, metallurgical yard, ore yard, wharf, etc.

Contribution to society

Angang Steel actively shoulders its responsibilities. It has established new development plans and objectives, and taken new measures to help with the effective connection between poverty alleviation and rural revitalization. Moreover, it has built its own image in charitable activities, devoted itself actively to charity and made contributions to the harmonious development of the society.

Boosting rural revitalization

key performance

In 2021

- It invested RMB **15,596** million in offering aid.
- Assigned **12** cadres for temporary post.
- Implemented **6** assistance and support projects.
- Introduced RMB **72,000** for free-of-charge assistance and support.
- Spent RMB **17.93** million in buying subsidiary agricultural products for assistance, and helped to sell the agricultural products with a value of RMB **60,000**.
- Organized training for **712** officials at the community level.
- Organized training for **283** technical personnel.

The Company has set up a leading group on assistance and support, strengthened organizational leadership and fulfillment of responsibilities, and surveyed needy people and guided the assistance and support. It has also established a dedicated assistance plan, and enhanced the top level design for rural revitalization by selecting and assigning capable leaders. As a result, it has created a new situation in rural revitalization at the needy places in terms of industry, talent, culture, and ecology, with an aim to strengthen the building of modern beautiful countryside with high quality.

Providing assistance for industrial production

- The Company has focused on the yak meat industry of Pamir Plateau, and invested RMB 12.096 million in forming a complete industry chain of “planting + cultivation + seed-breeding + deep processing”.
- The Company has invested RMB 1 million in improving the epidemic prevention facilities in chicken farms to create conditions for the stable operation of chicken farms. By the end of 2021, it had raised 12,000 laying hens, with a laying rate above 91%. Both the breeding scale and laying rate reached a new record.
- It has also invested RMB 300,000 in implementing the photovoltaic power generation project in Shangtao Village, Chaoyang City, Liaoning Province, which increased the collective economic income of the village. By the end of 2021, the accumulative generating capacity had reached 31.153 MWh, and the revenues generated had reached RMB 11,526.

Offering assistance to increase people's confidence and enrich their knowledge

- The Company, aimed at solving management and technology bottlenecks in Ta County, has organized 14 training courses on medical and health, basic management and professional technology. In total, 1,059 persons have received the training, which has greatly stimulated the endogenous dynamics for the rural revitalization in Ta County.
- It has cooperated with local leading enterprises in ecological technology and invited experts to provide charge-free training for farmers and herdsmen on the planting technology of special agricultural products such as *Coreopsis tinctoria* and *Lepidium meyenii* Walp. Besides, it has introduced the development model with the cooperation of enterprises, bases and farmers. It has also encouraged farmers and herdsmen to develop the courtyard economy with green vegetation. In total, 144 persons have received the training, and 504.4 mu (about 83.07 acres) *Coreopsis tinctoria* has been planted, which has greatly increased the revenues of farmers and herdsmen.
- Before the International Children's Day in 2021, the Company donated 6 sets of teaching aids and 1,100 exercise books to the primary school with accommodation facilities in Ta County.

Boosting cultural revitalization

- The Company has invested RMB 2.2 million to build a patriotism education center and hold Chinese study classes, so as to provide patriotism education for Tajik children, diversify their cultural life, and improve their level of education. By the end of 2021, 9,406 students and 972 teaching and administrative staff had been benefited.

Powering ecological revitalization

- The Company has assigned cadres to improve the living environment of rural areas together with local community-level cadres, strengthened the separation of residential areas, activity areas of livestock, and planting areas, and supervised and urged the renovation of toilets in rural areas.
- The Company has participated in the maintenance and modification works of the wastewater treatment plant in Ta County, followed up the construction schedule and quality of the construction organizations, and provided guarantee for the green development and ecological revitalization of Ta County.

Giving assistance to consumption

- The Company signed a paired assistance framework agreement with Dawulaitedie Village and Saerbuhe Village in Abati Town, Ta County. It has purchased the characteristic products for sales to help widen the sales channels of such products.
- The Company has strengthened its assistance to promote consumption by spending RMB 5.2 million in buying the agricultural products in Ta County and helping to sell the agricultural products (with a value of more than RMB 60,000) of Ta County and Shangtao Village in Chaoyang, Liaoning province, which has helped the farmers and herdsmen increase their revenues.

Supplying assistance to improve the people's livelihood

- The Company has invested RMB 1.096 million to implement the agricultural planting and procurement project at Tatikuli resettlement site. As a result, more than 1,700 mu (about 279.99 acres) land has been cultivated, and 1,418 persons from 358 households have been lifted from poverty.
- The Company built a 25km highway extending to the border at Wakhan Corridor with an average altitude of 4,600 m, which was highly recognized by the major leaders of local government.

Conducting public charity activities

In 2021, the Company built its voluntary service brand of “following the lead of Guo Mingyi to learn from Lei Feng”, and took the spirit of Lei Feng which has been passed on for two generations as an important carrier for spreading the fine cultures and revolutionary spirit of the Chinese people. It has mobilized and supported employees to conduct voluntary activities such as epidemic prevention and control, plant civilization and hygiene, social welfare undertakings, etc., which fully demonstrates the favorable image of the youth of Ansteel Group.


key performance

- There were **3,539** volunteers.
- 6,366** persons attended the voluntary service activities.
- The time of voluntary services totaled **11,176** hours.

Case

Guo Mingyi Volunteer Team has assisted students in rural areas to fulfill their dreams with love for 16 consecutive years.

Since 2005, Guo Mingyi Volunteer Team in the Technology Center of Angang Steel has begun the public welfare projects to help the students in rural areas fulfill their dreams. The volunteer team provides assistance for Li Bao Primary School in Xiuyan County each year, and donates materials and offers public services to the school actively. By the end of 2021, the Company had provided funds to build computer rooms and libraries and donated more than 1,500 sets of stationery, more than 100 schoolbags, more than 400 books, and more than 100 sports goods, and given rewards to over 60 students with excellence in character and learning. The donation fee totaled more than RMB 30,000. These activities have helped the children in Li Bao Primary School realize their dreams, and they are praised by the Anshan municipal youth league committee, Anshan municipal Party committee, youth league committee of Xiuyan County and Party committee of Xiuyan County for several times.



» Picture of the volunteer team representatives with teachers

Outlook 2022

In 2022, Angang Steel will thoroughly apply the state policies and requirements for carbon dioxide peaking and carbon neutrality, rural revitalization and other important events, and advance its strategic planning in the 14th Five-year Plan period in an all-around way, it will make a solid step and achieve the coordinated development of economic, social and environmental benefits. It will strive to build Angang Steel into a "flagship" with the greatest competitiveness in the steel industry, and make new contributions to the high-quality development of a new Ansteel.

Insist on efficient management. The Company will take the following measures to achieve this purpose: continuously improve the organizational framework for sustainable development and further define the development path; work harder to promote the implementation of the strategies for sustainable development; deepen the reform further and adhere to honest operations in compliance with rules and regulations; promote the improvement of quality and increase in efficiency; pool the strength and wisdom of shareholders, government and other stakeholders to become a pacesetter of high-quality development in the iron and steel industry at home.

Stick to green development. The Company will act as follows to achieve this purpose: respond to the state goals of carbon dioxide peaking and carbon neutrality, and implement the low-carbon metallurgy route map of Ansteel Group; adhere to the principles of "Reduce, Reuse, Recycle and Green", improve the environmental management system, and strengthen clean production, energy conservation and emission reduction, climate mitigation etc.; incorporate green development and environmental protection into every process of enterprise development, and bring about a new pattern with coordinated environmental and economic development.

Adhere to harmony and co-development. The Company will take the following actions for this purpose: create a diverse and inclusive work environment and a vast development platform, and provide employees with a stage for them to bring their talent into play and realize their value; supply high quality products and considerate services, and make the optimal solutions for customers; build a responsible image of Angang Steel, and foster new dynamism of development through digital and smart means; promote upgrading of network, platform, application, model and ecology in an all-around way, and create a way for digital development appropriate for its own situations; lead the way in making technology innovation through mechanism innovation, R&D of key technologies, and personnel training, work hand in hand with partners to form a responsible supply chain, and create a valuable industry chain jointly; take multi-pronged measures to promote the effective connection of poverty alleviation and rural revitalization, devote to social welfare undertakings actively, and embody the sense of responsibility of the enterprise.

ESG Index

Indicators Content		Page
A1 Emissions		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	20-29
A1.1	The types of emissions and respective emissions data	22
A1.2	Total greenhouse gas emissions (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	29
A1.3	Total hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	24
A1.4	Total non-hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	24
A1.5	Description of measures to mitigate emissions and results achieved	21
A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved	24
A2 Use of Resource		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	23, 25, 26
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (calculated in kWh) and intensity (e.g. per unit of production volume, per facility)	26
A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility)	23
A2.3	Description of energy use efficiency initiatives and results achieved	21
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved	21, 23
A2.5	Total packaging material used for finished products (in tons) and, if applicable, with reference to per unit produced	24
A3 Environment and Natural Resources		
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources.	30-31
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	30-31
A4: Climate Change		
General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	27-29
A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	27-29
B1 Employment		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	34-35
B1.1	Total workforce by gender, employment type, age group and geographical region	35
B1.2	Employee turnover rate by gender, age group and geographical region	34
B2 Health and Safety		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	37-38
B2.1	Number and rate of work-related fatalities	37
B2.2	Lost days due to work injury	37
B2.3	Describe the adopted occupational health and safety measures, as well as relevant implementation and monitoring	38

Indicators Content		Page
B3 Development and Training		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. Training refers to occupational training, including internal and external courses paid by the employer.	38-39
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	39
B3.2	The average training hours completed per employee by gender and employee category.	39
B4 Labour Standard		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	34
B4.1	Description of measures to review employment practices to avoid child and forced labour.	34
B4.2	Description of steps taken to eliminate such practices when discovered.	—
B5 Supply Chain Management		
General Disclosure	Policies on managing environmental and social risks of the supply chain.	46
B5.1	Number of suppliers by geographical region.	47
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	46
B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	46
B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	46
B6 Product Responsibility		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. Description of consumer data protection and privacy policies, how they are implemented and monitored.	40-42
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	—
B6.2	Number of products and service related complaints received and how they are dealt with.	41
B6.3	Description of practices relating to observing and protecting intellectual property rights.	45
B6.4	Description of quality assurance process and recall procedures.	40
B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	42
B7 Anti-corruption		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to the prevention of bribery, extortion, fraud and money laundering.	12
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	12
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.	12
B7.3	Description of anti-corruption training provided to directors and staff.	12
B8 Community Investment		
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the community interests.	48-49
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture and sport).	48-49
B8.2	Resources contributed (e.g. money or time) to the focus area.	48-49

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?

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