



Embrace the mission Lead the future

Beijing Shougang Company Limited Sustainability Report 2024



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About This Report

Dear Readers,

The *Shougang Co. Sustainability Report 2024* adheres to the principles of objectivity, standardization, transparency, and comprehensiveness. It systematically discloses the commitments, management approaches, initiatives, and achievements of Beijing Shougang Co., Ltd. in social responsibility, environmental protection, and corporate governance in 2024.

Beijing Shougang Co., Ltd.
April 2025

Report Scope

This report covers Beijing Shougang Co., Ltd. and affiliated branches and subsidiaries, consistent with the consolidation scope of the 2024 Annual Report. Hereinafter "Beijing Shougang Co., Ltd." in the report is also referred to as "Shougang Co.", "the company" or "we" for ease of expression and reading.

The main products manufacturers of Shougang Co. : Shougang Qian'an Iron & Steel Co., Ltd. (*Qiangang Co.*), Shougang Jingtang United Iron & Steel Co., Ltd. (*Jingtang Co.*), Beijing Shougang Cold Rolling Co., Ltd. (*Cold-R Co.*), and Shougang Zhixin Electromagnetic Materials (Qian'an) Co., Ltd. (*Shougang Zhixin*).

Note: The Qianshun Base refers to the integrated production organization with research and development system formed by Qiangang Co., located in Qian-an, Hebei Province, and Cold-R Co., located in Shunyi District, Beijing.

Reporting Period

The report covers the period from January 1, 2024 to December 31, 2024 (referred to as the "Reporting Period"), with some of the information retrospective to previous years and including the first quarter of 2025.

Data Sources and Reliability Assurance

The information and data disclosed in this report originate from the company's documents and statistical data, and have been verified by relevant departments. The company guarantees that the contents of this report are free from any false records or misleading statements and takes responsibility for the authenticity, accuracy, and completeness of the contents.

Preparation Basis

This report is primarily prepared with reference to the *Self-Regulatory Guidelines No. 17 for Companies Listed on Shenzhen Stock Exchange—Sustainability Report (For Trial Implementation)*, *Self-Regulatory Guidelines No. 3 for Companies Listed on Shenzhen Stock Exchange—Preparation of Sustainability Report*, the *Global Reporting Initiative (GRI) Standards*, the *Guidelines for Environmental, Social and Governance (ESG) Special Report of Iron and Steel Enterprises issued by China Iron and Steel Association (CISA)*, and the *China Corporate Sustainability Report Guidelines (CASS-ESG 6.0)*. It also incorporates the United Nations 2030 Sustainable Development Goals (SDGs), FTSE Russell ESG Ratings, and S&P Global Corporate Sustainability Assessment (S&P CSA) requirements.

Report Preparation Process

The preparation of this report involves several stages, including the establishment of a working group, data collection, stakeholder interviews, stakeholder questionnaire surveys, framework determination, report drafting, report design, and internal company review.

Report Acquisition

The electronic version of this report can be downloaded from the column on the official website of Shougang Co. (<http://www.sggf.com.cn/>).



Text Language

This report is available in both Chinese and English. If there is any discrepancy between the two languages, please refer to the Chinese version.

For any questions regarding the content of this report, please feel free to contact us by phone or email. Our contact information is as follows:

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Chairman's Message



The year 2024 marks the 75th anniversary of the founding of the People's Republic of China and the beginning of a new journey for Shougang Co. towards high-quality development after achieving its three-year foundational goals. Shougang Co. insists on deeply integrating ESG concepts into the company's strategic decision-making and whole process of operation. Focusing on high-quality sustainable development, the company adheres to an innovation-driven strategy, laying a solid foundation for technological leadership; actively responds to climate change, deeply cultivating green and low-carbon foundation; continuously optimizes and improves the control systems, strengthening the cornerstone of corporate governance; and deeply promotes talent empowerment, solidifying the foundation of human resources.

Deliberate and thoughtful, Building a solid foundation of technological leadership

Technological innovation is the most active element in driving the development of productive forces and has become a new engine for industrial development. The company always insists on making technological innovation as the its primary competitive advantage, driving quality, efficiency, and power transformations in business development through technological innovation. The company launched 6 debut products in 2024. Our ultra-thin oriented electrical steel products have maintained leading domestic market share for consecutive years. We independently developed a self-bonding coating technology, becoming the world's first new energy leading automaker's designated supplier for self-bonding core materials. Shougang Zhixin was rated

as "excellent" in the annual special assessment of "Science and Technology Reform Enterprise" and was selected for the China Unicorn Enterprise List. The Cold-R Co. became the third in the national steel industry and the 7th in the global steel industry to be listed as a global "Lighthouse Factory".

Strive diligently, Fostering green and low-carbon roots

We actively carry out actions to address climate change and implementing green manufacturing, and take the low-carbon routes as the key to sustainable development of enterprises. The company attaches great importance to the influence of the carbon market and EU carbon tariffs on steel enterprises, formulating a green action plan, landing a "dual carbon" control scheme, building a low-carbon product system, promoting the construction of a near-zero carbon emission high-quality steel demonstration project, setting up a scrap steel traceability model, and jointly establishing a 100% value retention and closed-loop recycling system for automotive steel in the industry. At the same time, the company continues to focus on energy efficiency improvement, energy-conservation technologies, water resource management, and other environmental management efforts, making the company's green and low-carbon features more distinct. The company was awarded the "Green and Low-Carbon Excellence Enterprise" and "Energy Efficiency Benchmark Demonstration Enterprise for Dual Carbon Best Practice". Jingtang Co. was selected as a typical case of "Zero Waste Disposal Factory" by the Ministry of Industry and Information Technology.

Deeply rooted, Strengthening the foundation of corporate governance

Continuously improving and optimizing the control system and comprehensively advancing the modernization of the corporate governance system and capabilities are the cornerstones of high-quality development for enterprises. The company attaches great importance to the standardization and effectiveness of corporate governance, orderly regulates the operation of Shareholders' General Meeting, Board of Directors, and Supervisory Committee, and establishes a scientific, standardized, effective, and efficient modern governance system. We strengthen compliance management, and have obtained ISO 37301 Compliance Management System certification. We enhance ESG issue management and continuously carry out ESG brand building. In response to the Shenzhen Stock Exchange's special initiative, we released an "Quality and Returns Enhancement" Initiative. Aligning with the "New National Nine Measures", we are committed to improving shareholder returns. By legally and compliantly conducting information disclosure, the company further improves the initiative and transparency of information disclosure.

Start from the near, Solidifying the foundation of human resources

Talents are an important force for the sustainable development of enterprises. We adhere to the concept that talent is the primary force for development, continuously optimizing the talent team construction and development system based on respecting, caring for, and developing talents, widely pool talent to start businesses, and cultivate talents through doing business. The company has established a sound talent promotion evaluation mechanism, smoothing the career development path for talents. We have constructed

the "Voyage" full-life-cycle career development system, and based on the positioning needs of talents at different levels, we have built a five-level talent development and cultivation platform named "Wave, Sail, Set Sail, Guide, Lead".

Prevent minor issues to avoid major problems, Building a solid foundation for intrinsic safety

Safety is the red line and bottom line for enterprise development. The company adheres to safety culture as the guide, safety standardization as the main line, the "dual control" mechanism as the core, and intrinsic safety management as the focus, comprehensively advancing the modernization of the safety production governance system and capabilities, enhancing the ability to prevent and resolve safety risks, striving to promote the benign interaction between high-quality development and high-level safety, and building a safety dam with a higher position, higher standards, and stricter requirements. The company continues to advance the fundamental improvement actions, completing the intrinsic safety management research project plan; implementing a new model for major accident hazard management, cutting off the chain of hazard formation. During the reporting period, the company achieved zero accidents in production safety and 100% completion rate of safety education training and emergency drill plans.

Walk hand in hand, consolidating the foundation of a stable industrial chain

The safety and stability of the industrial chain are important guarantees for the sustainable development of enterprises. The company attaches great importance to industrial chain

management, promoting the construction of green supply chains and intelligent marketing service systems, building secure supply chains and strong industrial chains. The company has built an intelligent and transparent bidding and procurement system, achieving effective supervision throughout the bidding process, and the bidding and procurement platform has obtained the highest level certification for electronic bidding systems. At the same time, we promote the optimization, upgrading, and application innovation of the intelligent marketing system, strengthen technical marketing, and continuously enhance the operational efficiency of integrated production and sales.

With great momentum on a long journey, Rising to the challenge and forging ahead once more

The company will always take promoting high-quality development as its primary task, firmly grasp the development requirements of New Quality Productive Forces, maintain a spirit of forging ahead and never slacken, and a fighting attitude of daring to venture and advancing bravely, and adhere to governance modernization, green and low-carbon, technology-driven enterprise, talent-driven enterprise, intrinsic safety, and upstream and downstream collaboration, striving for a good start to the "15th Five-Year Plan", and vigorously achieving the high-quality development of Shougang Co.



Chairman of Beijing Shougang Co., Ltd.

About Us

Beijing Shougang Co., Ltd. was listed on Shenzhen Stock Exchange in December 1999 (Stock code: 000959), controlled by Shougang Group, a Fortune 500 enterprise.

The company firmly upholds its strategic commitment to "Green Manufacturing, Smart Manufacturing, Premium Manufacturing, Lean Manufacturing, and Precision Services". Driven by innovation, we prioritize technological innovation as our primary competitive advantage. Adhering to the "Manufacturing + Services" competitive edge, we persistently optimize our product mix, production line structure, and customer portfolio, and advance the R&D and production of high-end products, particularly electrical steel, automotive sheets, and tinplate (chrome-plate). Through strategic transformation, the company has evolved from a 4-million-tonne premium bar and wire rod producer at IPO to a technologically advanced, green and low-carbon enterprise with an annual capacity of 21.7 million tonnes of high-end flat steel products.

Development Strategy

Focusing on the overall goal of "Making the steel industry better and stronger", Shougang Co. adheres to the development directions of "High-end, High-efficiency, Intelligent, and Green" and positions as a "World-class high-end materials service provider". With the strategic focus of promoting and implementing the development goals of the iron and steel industry with strong profitability, strong innovation ability, excellent asset quality, excellent operation efficiency, excellent energy conservation and environmental protection, we firmly promote the strategy of "green manufacturing, intelligent manufacturing, high-quality manufacturing, lean manufacturing, and precise service", adhere to the two-wheel drive of "capital+operation", and promote the high-quality development of the company. The company continues to promote the development of high-end products focusing on electrical steel, automotive sheets, and tinplate (chrome-plate). Efforts are consistently made to strengthen the five core advantages of product, quality, cost, service, and technology. The company aims to continuously improve the manufacturing and service level and operational efficiency, forming a number of customer clusters with international competitive strategic product, and strives to build a steel listed company with world-class competitiveness and influence.

Company Mission

Talent as the foundation, Strengthen the enterprise to serve the country

Company Vision

To build a steel listed company with world-class competitiveness and influence

Core Values

Integrity, Collaboration, Innovation, Sharing



Customer first, Integrity first, Excellence in Detail, Go far with innovation

Drive technological innovation to become Shougang's top competitive advantage

Chasing dreams together, Co-building and sharing, Happiness and harmony

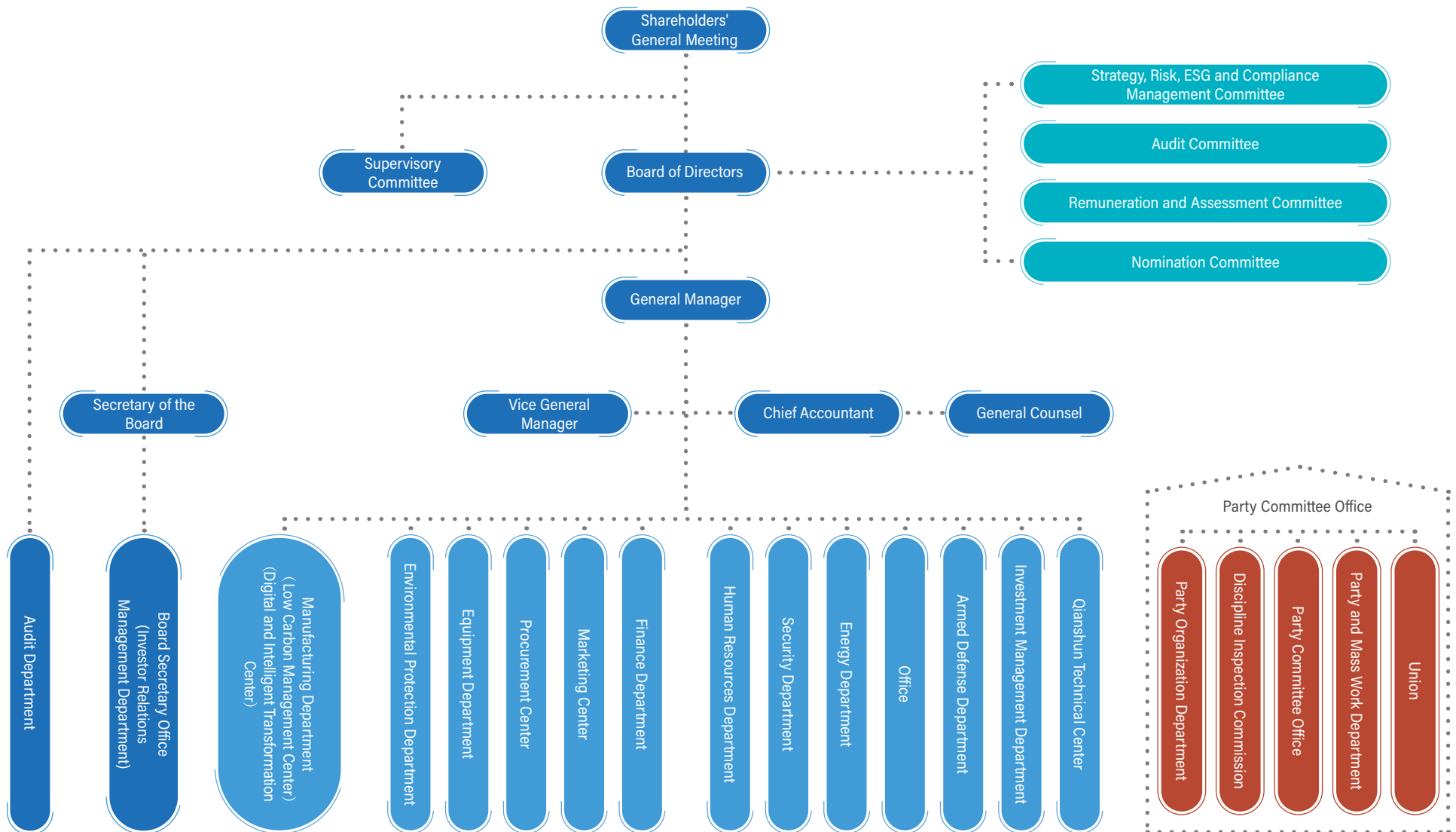


Safety first, Environmental priority, Dedication, Accountability

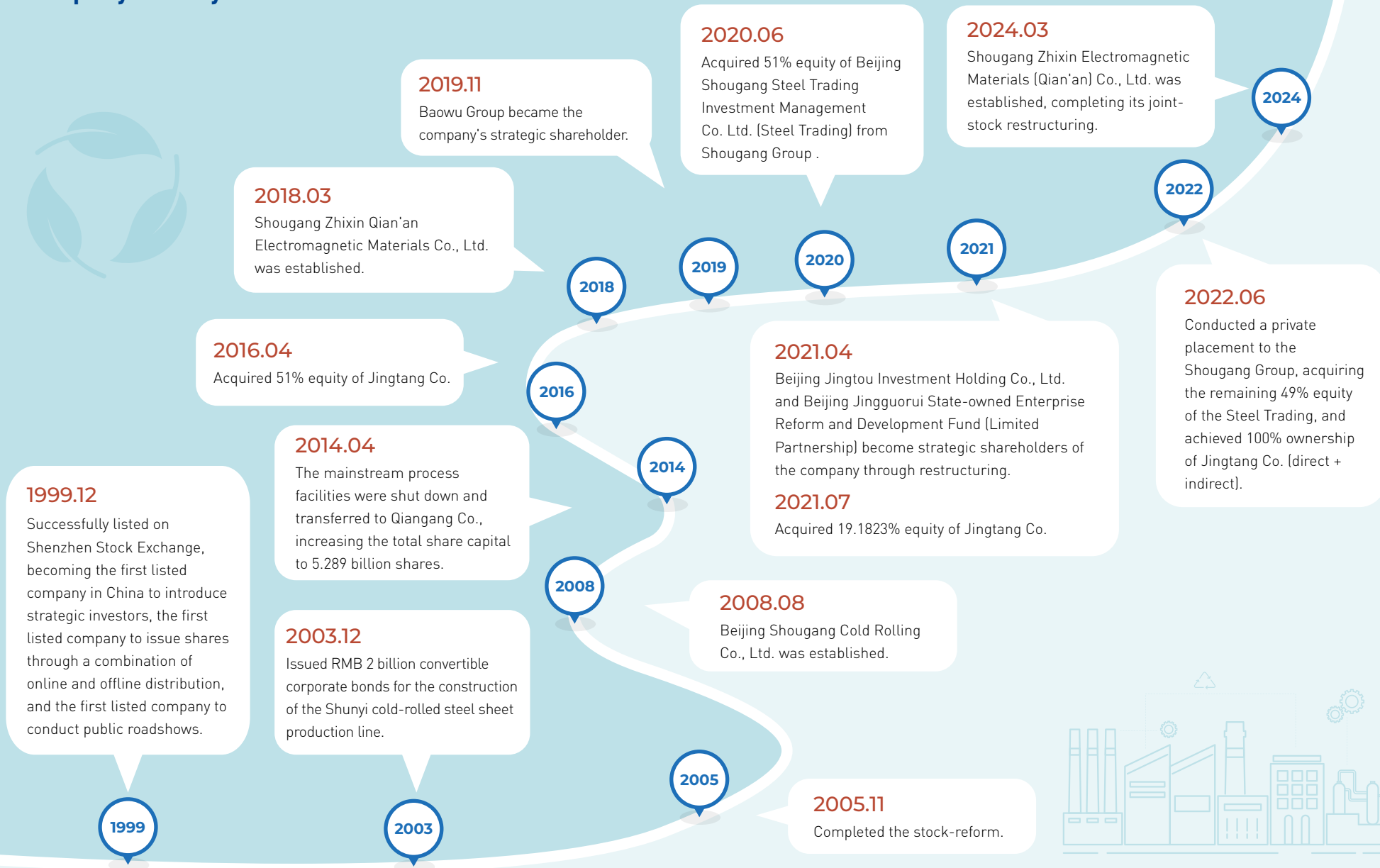
Talent as the foundation, Loyalty and commitment, Unity and striving

Rigorous and meticulous, Benchmarking against global leaders, Pursuing perfection

Organizational Structure



Company History

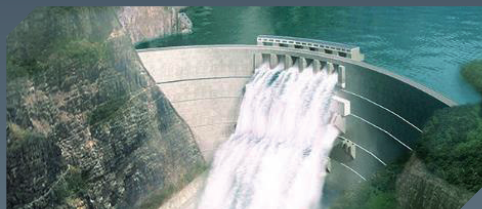


Automotive Sheets



Structural parts and body panels for passenger vehicles and commercial vehicles

Electrical Steel



Transformer, motor and generator, and compressor cores, etc.

Tinplate(Chrome-plate)



Beverage cans, powdered milk cans, and food cans, etc.

Product Portfolio

Shougang Co. is leading the development of a high-end product cluster through focusing on 8 key product categories: automotive sheets, electrical steel, tinplate, home appliance steel, pickled sheets, hot-rolled sheets, plates, and galvanized sheets.

Pickled Sheets



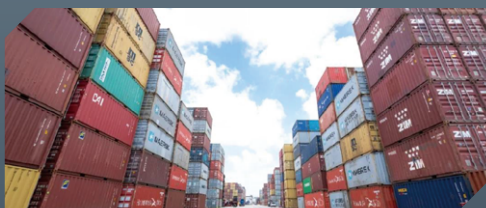
Automotive parts, home appliance compressors, etc.

Household Appliance Steels and Specialty Steels



Refrigerator, air conditioner, and washing machine manufacturing

Hot-rolled Sheets



Automotive structure, construction machinery, pipeline, container, etc.

Plates



Shipbuilding and Offshore Engineering, bridge manufacturing, heavy equipment, etc.

Galvanized Sheets



Solar racking system, highway barrier

Major ESG Performance in 2024

Total investment in environmental protection in the past 5 years (RMB million)

2024	4,975
2023	4,701
2022	6,245

Environmental protection performance evaluation

2024	A
2023	A
2022	A

Proportion of operations certified by the environmental management system (%)

2024	100
2023	100
2022	100

Proportion of operations certified by the energy management system (%)

2024	100
2023	100
2022	100

Clean energy consumption (Tonne standard coal)

2024	159,551
2023	114,459
2022	90,207

Annual generation of Self-provided clean energy (photovoltaic power generation) (MWh)

2024	18,220
2023	15,320
2022	15,500

Waste recycled (Million tonnes)

2024	13.44
2023	13.05
2022	12.37

Comprehensive utilization rate of solid waste(%)

2024	100
2023	100
2022	99

Total wastewater discharge(1,000 tonnes)

2024	346.60
2023	373.74
2022	434.71

Major ESG Performance in 2024

Water recycled rate (%)

2024	98.79
2023	98.73
2022	98.73

Total investment in work safety (RMB million)

2024	155
2023	167
2022	137

Proportion of R&D investment to operating revenue (%)

2024	4.52
2023	4.41
2022	4.56

Total number of employees (Person)

2024	17,762
2023	18,226
2022	18,608

Number of work safety accidents (NOS)

2024	0
2023	0
2022	0

Number of valid patents (PCS)

2024	3,924
2023	3,570
2022	2,955

Training coverage (%)

2024	100
2023	100
2022	100

Safety training hours (Hour)

2024	1,129,329
2023	928,362
2022	801,222

Proportion of female directors (%)

2024	12.5
2023	0
2022	0

Focus: Green and Low-Carbon Panoramic View

Shougang Co. adheres to the development philosophy that "lucid waters and lush mountains are invaluable assets", actively setting up a demonstrative model of green steel production and becoming the first steel enterprise to achieve ultra-low emissions for the entire steel process. The company actively embraces ESG principles and implements ESG initiatives. Focusing on national low-carbon requirements and customers' decarbonization needs, the company advances low-carbon management and full life cycle assessment (LCA)¹ management work, thereby strengthening sustainable development capabilities across multiple dimensions.

Low-Carbon Action Planning and Practice

Shougang Co. has meticulously developed and implemented the "Shougang Co. Low-Carbon Action Plan". The company continuously advances its LCA research, enhancing the construction and functional development of the LCA data collection platform and the intelligent carbon management platform. Environmental Product Declarations (EPDs) for various products, including hot-rolled sheets and strips, cold-rolled steel sheets and strips, and hot-dip galvanized aluminum-magnesium alloy coated sheets and strips, have been successfully published on the steel industry's EPD platform by the company.

Green and Low-Carbon Development Pattern

Shougang Co. actively responds to the national "dual carbon" strategy and is deeply committed to establishing a green, and low-carbon development framework. The company leads the industry in energy conservation and emission reduction technologies across its three steel production sites, with several sinter machines, BF's winning the title of "Champion Furnace" and "Outstanding Furnace" in national benchmarking competition for energy conservation and consumption-reducing in key large-scale energy-consuming steel production facilities. Qiangang Co., Jingtang Co., Cold-R Co., and Shougang Zhixin have all been recognized as national-level green factories; Cold-R Co. has built a national-level green supply chain management enterprise, and both Qiangang Co. and Jingtang Co. have been honored as "Steel benchmark enterprise for green development".



Green Products Driving Sustainable Development

Shougang Co. is committed to becoming a technological pioneer in green and low-carbon development of the global steel industry. The company has developed multiple series of green and low-carbon products, including high-efficiency electrical steel, lightweight high-strength steel for automobiles, high-strength steel for household appliances, long-life zinc-aluminum-magnesium alloy coated sheet for household appliances, and high-strength infrastructure steel. These innovations promote collaborative carbon reduction and green upgrades across downstream sectors such as automotive, machinery, household appliances, and power, helping the downstream industrial chain reduce carbon emissions by over 5 million tonnes annually. The company's low-carbon automotive sheets have reduced carbon emissions by over 30% compared to conventional process products. Additionally, cold-rolled high-strength steel for automotives, hot-rolled high-strength steel for automotives, pipeline steel, non-oriented electrical steel for new energy vehicles, and oriented electrical steel have all been recognized as "Green Design Products" by the Ministry of Industry and Information Technology.

¹ Life Cycle Assessment (LCA): The evaluation of inputs, outputs, and potential environmental impacts of a product system throughout its entire life cycle.

Best Practice Energy Efficiency Benchmark Demonstration Enterprise for Dual Carbon

In December 2024, Shougang Co. was awarded the title of "Best Practice Energy Efficiency Benchmark Demonstration Enterprise for Dual-Carbon". This recognition indicates that Shougang Co.'s remarkable achievements in energy efficiency improvement and green, low-carbon development, solidifying its position as an industry benchmark.

[Additional Information] Since the government put forward the strategic goal of "Dual Carbon", relevant ministries and policy documents, such as the "14th Five-Year Plan for the Modern Energy System", have set new requirements for energy transformation. On December 9, 2022, under the strategic guidance and strong promotion of the China Iron and Steel Association, the "Three-year Action Plan for Energy Efficiency Benchmarking in the Steel Industry" was officially launched, marking the practical implementation phase of the Extreme Energy Efficiency Project".

Technology Empowering Green and Low-Carbon Development

Shougang Co. actively promotes the transition from traditional energy control to smart energy, empowering green and low-carbon development through technology to enhance energy utilization efficiency and improve energy conservation and emission reduction levels. The company has independently developed a series of core technologies in smelting, rolling, energy conservation, and environmental protection, driving the improvement of energy efficiency and carbon reduction capabilities through technological advancement.

Digital Management System Supporting Low-Carbon Development

Shougang Co. has established an efficient, clean, low-carbon, and circular green manufacturing system, building a low-carbon management system alongside an LCA system. By employing LCA methodologies, the company conducts carbon emission accounting and reduction potential analysis for green manufacturing, green procurement, and green marketing, enabling quantitative evaluation and diagnostic assessments of environmental performance.

Sustainable Development Management

ESG Governance

Shougang Co. always upholds its corporate mission, integrating industry characteristics, proactively undertakes public responsibilities, standardizes corporate ethical behavior, and actively engages in social welfare activities to effectively fulfill its social responsibilities. The company is fully committed to becoming a technological pioneer in green and low-carbon development of global steel industry, and serving as a demonstrator of ultra-low emissions, a leader of low-carbon development, a promoter of industrial collaboration, a pioneer of ecological civilization construction, and a builder of a better society.

ESG Governance Structure

Shougang Co. has systematically planned its ESG management work and established a robust ESG governance structure, which includes the Board of Directors, Strategy, Risk, ESG and Compliance Management Committee of the Board, and ESG Working Group.



ESG Management Measures

Shougang Co. effectively manages ESG risks and continuously enhances its ESG management level through measures such as formulating ESG-related policies and conducting ESG training.

ESG Work Systems. The company has formulated the *ESG Work Promotion Program* and the *ESG Work Management System*, revised the *Work Regulations of the Strategy, Risk, ESG and Compliance Management Committee of the Board of Directors*, and clarified the responsibilities of ESG management work of the specialized committees and departments.

Implement ESG Training. The company actively participates in ESG management training and seminars organized by industry associations and ESG professional institutions, covering ESG management, responsible business conduct, human rights, and carbon emission rights. In addition, we have organized multiple training sessions—both online and offline—for our employees and suppliers, focusing on compliance management, green and low-carbon practices, safety management, and other ESG-related topics.

Case: Successfully Hosted the "ESG Innovation and Exploration in the Steel Industry" Sub-forum of the ESG China · Innovation Annual Conference (2024)

In October, 2024, the sub-forum "ESG Innovation and Exploration in the Steel Industry" of the ESG China-Innovation Annual Conference (2024) was held at Beijing Shougang Park. The sub-forum was organized by Shougang Co., co-hosted by Shougang Group and the China Enterprise Reform and Development Society as the hosts, and supported by the China Iron and Steel Association.

As a proactive leader in the ESG field, Shougang Co. has achieved remarkable results and places great emphasis on the application of ESG principles in its corporate development. During the forum, Xie Tianwei, Deputy General Manager of Shougang Co. shared the company's recent ESG explorations and practices. These included strengthening the foundation of corporate governance, adhering to green and low-carbon development, innovating carbon reduction technologies, building a green and low-carbon supply chain, and fulfilling social responsibilities, all of which contribute to the advancement of high-quality ESG construction.



Engagement in ESG Standards Formulation

As the primary drafter, the company engaged in the formulation of two group standards by the China Iron and Steel Association: *Guidelines for Environmental, Social, and Governance(ESG) Special Reports of Iron and Steel Enterprises* and *Guidelines for Environmental, Social, and Governance(ESG) Assessment of Iron and Steel Enterprises*, which facilitated the iron and steel industry in enhancing its ability to develop in a sustainable manner.

ESG Performance Evaluation and Management

The annual performance evaluation of the General Manager and other senior executives comprises three parts: indicator evaluation, key task assessment, and general assessment. The General Manager is evaluated on all indicators to ensure a comprehensive assessment of performance, while the remaining senior executives are assessed on indicators aligned with their respective responsibilities to ensure targeted and effective evaluations. Moreover, all executive evaluation metrics are closely linked to economic benefits, safety production, environmental protection, corporate governance, and other ESG performance indicators.

ESG Honors

"Green as the Priority, Technology as the Driver, Safety as the Guarantee—The Social Responsibility of a State-Owned Steel Listed Company in Developing Green Productivity" was awarded as the 2024 Beijing Corporate Social Responsibility Excellent Case

"Shougang Co.'s Environmental and Climate Risk Analysis and Management" was included in the "Environmental and Climate Risk Analysis and Management Case Collection" by the Green Finance Committee of China Society for Finance and Banking



Awarded as one of the "Top 100 Enterprises of the 2nd Guoxin Cup-ESG Golden Bull"



"Becoming a Technological Pioneer in Green and Low-Carbon Development and Developing Green Productive Forces" was rated as one of the Top 10 ESG cases among Beijing Municipal State-Owned Holding Listed Companies



Selected in the 2024 China Corporate ESG 100 Index List



Awarded the Best Social Responsibility Award in the 2024 Corporate ESG "Golden Responsibility Award"



"Creating a 'Golden Brand' for Green Development and Shaping a New Model of Circular Economy" was selected as an "ESG China: Excellence in Practice" case



"Improving the Informatization System of Low-Carbon Management to Make Green and Low-Carbon Goals Visible" was selected for inclusion in the "Top 100 Low-Carbon Brands" casebook by the Organizing Committee of 2024 CIFTIS Forum on Carbon Neutrality Action and Corporate ESG Innovation

Significant Improvement in ESG Ratings

In 2024, Shougang Co.'s ESG ratings from FTSE Russell, S&P CSA (Corporate Sustainability Assessment), S&P ESG scores, and Refinitiv were successively released. Compared with 2023, Shougang Co.'s ESG rating scores from these three international rating agencies have seen a multiplicative improvement - S&P's score increased by 24 points, FTSE Russell's score increased by 1.3 points, and Refinitiv's rating was upgraded from C+ to A-. These remarkable achievements are the result of Shougang Co.'s relentless efforts and deep-rooted in environmental protection, social responsibility, and corporate governance.

 FTSE Russell ESG 2.4	 Refinitiv ESG A-	 S&P Corporate Sustainability Assessment (CSA) 39
 Wind ESG A	 China Metallurgical Industry Planning and Research Institute ESG AAA	 Sino-Securities Index ESG A

Case: Jingtang Co. Achieved EcoVadis "Silver Medal" Certification

In 2024, Jingtang Co. received the EcoVadis "Silver Medal" certification in its sustainability evaluation, ranking among the top 8% over 140000 registered companies worldwide across various industries and ranking first among Type L (large-scale) steel companies in China.









In 2024, Jingtang Co. actively advanced its social responsibility initiatives. The initiatives include establishment a social responsibility management system, formulating the *Social Responsibility Work Management System* and sorting out material topics, with a focus on addressing the weak points in moderate- and high-risk management areas.



➤ Stakeholder Engagement

Effective stakeholder communication is a crucial foundation for Shougang Co. in conducting goal management and creating shared value. Based on the principles of integrity, interaction, equality, and transparency, the company has established various channels for daily and specialized communication with its stakeholders. By comprehensively collecting stakeholders' demands and expectations, employing scientific analysis and research methods, implementing efficient execution and monitoring mechanisms, and continuously adopting improvement and collaborative measures, the company has formed a closed-loop management system for stakeholder communication, ensuring effective stakeholder participation in its ESG management.

In 2024, the company actively engaged in communication with its stakeholders, promptly refined its communication mechanisms, and continuously enhanced the effectiveness and timeliness of stakeholder interactions.

Stakeholders	Main Focus Areas	Communication and Response	Stakeholders	Main Focus Areas	Communication and Response
 Shareholders and Investors	Shareholder Value Creation Corporate Governance ESG Management Anti-Commercial Bribery and Anti-Corruption Risk Management Information Disclosure	Shareholders' General Meeting Performance Briefings On-Site Investigation Investor Communications (Interactive Easy etc.) Information Disclosure	 Suppliers	Equal Treatment of SMEs Supply Chain Security Anti-Commercial Bribery and Anti-Corruption Fair Competition Due Diligence	Supplier Conferences Supplier Qualification Audits Industry Benchmarking Exchange and Visit Conflict Minerals Claim Issuance of Integrity Notices
 Employees	Employee-Friendly Workplace Democratic Management Employee Compensation and Benefits Occupational Health and Safety Employee Career Development and Training Anti-Commercial Bribery and Anti-Corruption	Employee Representative Congress and Symposiums Various Employee Activities Meetings and Training Employee Performance Assessment Employee Mailbox Shougang Sincere Friend APP, Shougang Tong APP Internal Publications, Notice Boards Assistance for Employees in Difficulties, On-Site Visits and Condolences Employee Satisfaction Survey	 Government and Regulatory Agencies	Ethics of Science and Technology Climate Response Wastewater Discharge Exhaust gas Emission Waste Disposal Environmental Compliance Management Ecosystem and Biodiversity Protection Energy Utilization Water Resources Utilization Circular Economy	Daily Communication and Reporting On-Site Surveys Information Disclosure Environmental Data Networked with Government Departments for Real-Time Transmission Environmental Responsibility Reports Compliance with Laws, Regulations, and Policy Learning Acceptance of Regulatory Inspections
 Customers	Anti-Commercial Bribery and Anti-Corruption Data Security and Customer Privacy Product Quality and Customer Service Intelligent Manufacturing Innovation Climate Response	Customer Satisfaction Survey Three-Tier Service System Customer Meetings and On-Site Exchanges Technical Forums "Shougang Day" Events Joint Laboratories and Innovation Studio Alliances Smart Marketing Platform	 Community Organizations and Non-Governmental Organizations	Rural Revitalization and Social Contributions	Community Activities Public Welfare Activities Volunteer Services Information Disclosure Open Day
 Media	Information Disclosure	Strengthen communication and exchanges with the media Timely disclose important information and news Acceptance of media interviews	 Industry Partners, Industry Associations, and Research Institutions	Innovation	Strengthen communication and exchanges with the media Timely disclose important information and news Acceptance of media interviews

Materiality Assessment

Shougang Co. regards the implementation of normalized management of material issues as the foundation and core of its ESG management and information disclosure. In 2024, according to the *Self-Regulatory Guidelines No. 17 for Companies Listed on Shenzhen Stock Exchange—Sustainability Report (For Trial Implementation)*, the company updated its assessment methodology and conducted a dual materiality assessment for the first time. This evaluation integrates a financial perspective into the conventional impact materiality assessment by widely soliciting feedback from multiple departments and stakeholders, comprehensively analyzing the impact of ESG issues on the company's business operations, financial and economic performance, environment, and society, and providing focused responses to material issues in this report.

- Issues Identification:** In 2024, the company re-examined ESG issues and their connotations based on macro policy orientation, industry policy trends, and the latest regulatory requirements, and by benchmarking ESG development practices among peers while considering its own business characteristics and development goals, ultimately identifying 30 highly relevant issues.
- Materiality Assessment:** In the impact materiality assessment, the company employed stakeholder questionnaires to evaluate each issue's importance on the economy, environment, and society from the perspectives of both the likelihood of occurrence and the degree of impact. In the financial materiality assessment, internal financial experts evaluated the short-term, mid-term, and long-term financial impacts of each issue based on the continuity of resource usage and the dependency of ongoing operations, quantitatively analyzing financial materiality in conjunction with the likelihood of risks and opportunities.
- Dual Materiality Analysis:** The quantitative analysis of the impact and financial materiality assessment results were presented in a matrix format to illustrate the overall priority of each issue, with nine issues exhibiting high dual materiality.
- Review and Confirmation:** The results of the dual materiality analysis were subsequently reviewed and confirmed by the Financial Department, the Board Secretary Office, and the ESG Working Group.
- Guiding ESG Information Disclosure and Practice:** For issues with high dual materiality, including climate response, environmental management (environmental compliance management, wastewater discharge, exhaust gas emission, and waste disposal), resource utilization (energy utilization), innovation, employee growth (employee compensation and benefits), and occupational health and safety, the company discloses information from four dimensions: governance, strategy, risk and opportunity management, and key performance indicators and targets. For other issues of relatively high and moderate materiality, the company discloses relevant management practices and actions. In practice, the company also strengthens the overall management of these issues by leveraging its risk management and internal control systems to strictly control related risks while actively seizing opportunities to drive sustainable development.

Governance

The governance structure and internal controls used by the company to manage and oversee sustainability-related impacts, risks, and opportunities.

Risks and Opportunities Management

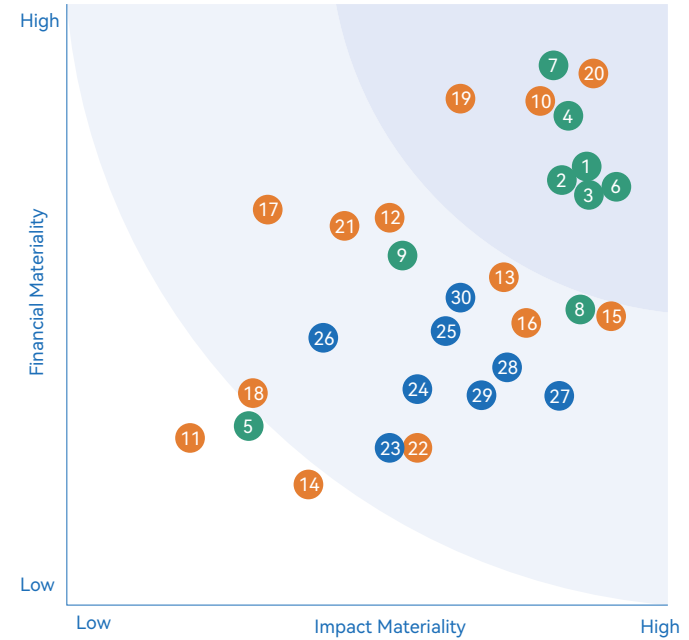
The measures and processes used by the company to identify, assess, monitor, and manage sustainability-related impacts, risks, and opportunities.

Strategy

The company's plans, strategies, and approaches for addressing sustainability-related impacts, risks, and opportunities.

Metrics and Targets

The metrics and targets used by the company to measure, manage, monitor, and evaluate its response to sustainability-related impacts, risks, and opportunities.



1	Climate Response	11	Ethics of Science and Technology	21	Employee Career Development and Training
2	Wastewater Discharge	12	Intelligent Manufacturing	22	Rural Revitalization and Social Contributions
3	Exhaust Gas Emission	13	Supply Chain Security	23	Due Diligence
4	Waste Disposal	14	Equal Treatment of SMEs	24	Stakeholder Engagement
5	Ecosystem and Biodiversity Protection	15	Product Quality and Customer Service	25	Anti-Commercial Bribery and Anti-Corruption
6	Environmental Compliance Management	16	Data Security and Customer Privacy	26	Fair Competition
7	Energy Utilization	17	Employee-Friendly Workplace	27	Information Disclosure
8	Water Resources Utilization	18	Democratic Management	28	Corporate Governance
9	Circular Economy	19	Employee Compensation and Benefits	29	ESG Management
10	Innovation	20	Occupational Health and Safety	30	Shareholder Value Creation

Material Issues for Response

Anti-Commercial Bribery and
Anti-Corruption, Fair Competition,
Stakeholder Engagement, Data
Security and Customer Privacy

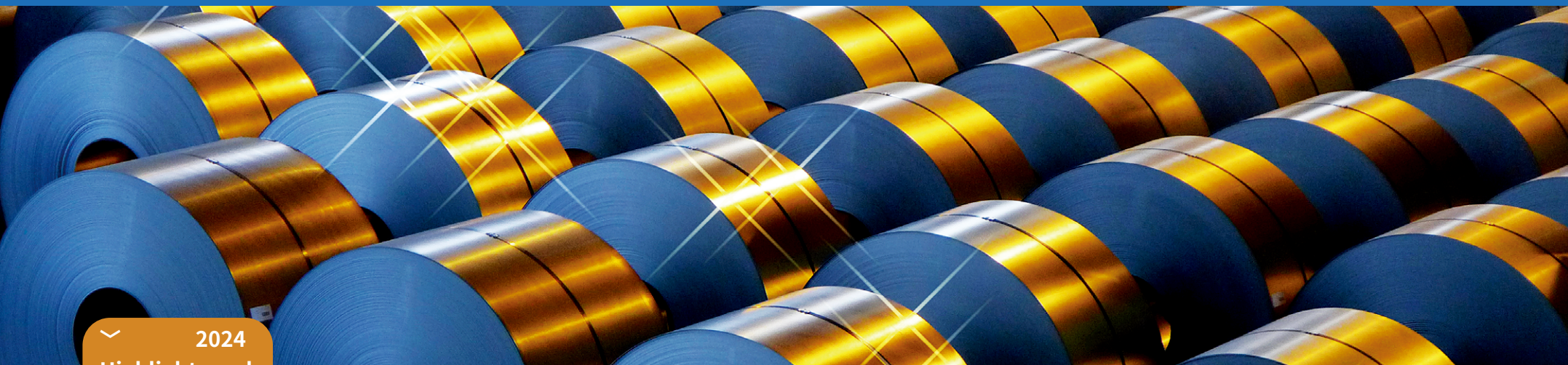
Key SDGs Addressed



Governance

Strengthening Governance Foundations Navigating a Responsible Future

Shougang Co. has strengthened the leadership of the Party, continuously improved its governance structure, enhanced risk management and information security system construction, achieving significant results in governance. We have promoted the diversification and independence of the Board of Directors, established and refined the institutional framework, standardized the operations of the mechanism of the Shareholders' General Meeting, Board of Directors, and Supervisory Committee, and actively managed market value and investor relations. The company has reinforced integrity building, promoted joint efforts in integrity, and strengthened risk prevention and control, while deepening education on integrity culture to foster a clean and upright corporate environment.

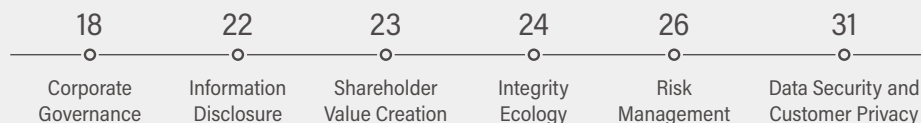


2024 Highlights and Achievements

Awarded the "2024 Outstanding Board Office Practice Case of Listed Companies" by the China Association for Public Companies

Honored with the "Golden Roundtable Award for Outstanding Board of Directors" at the 19th China Listed Company Board of Directors Forum by Board of Directors Magazine

Graded as AAA by Enterprise's Development Index of Steel

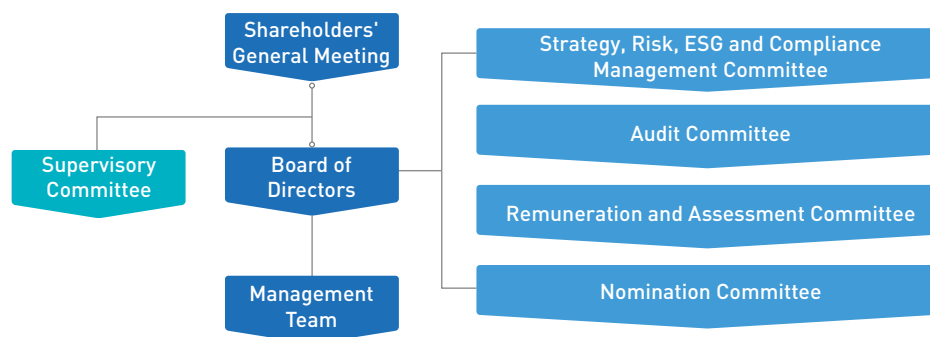


Corporate Governance

Shougang Co. fully recognizes the importance of establishing a standardized corporate governance mechanism. We strictly comply with relevant laws, regulations, and normative documents, such as the *Company Law of the People's Republic of China*, the *Securities Law of the People's Republic of China*, the *Code of Corporate Governance for Listed Companies*, and the *Listing Rules of Shenzhen Stock Exchange*. We continuously enhance our governance structure and standardize the operations of the Shareholders' General Meeting, the Board of Directors, and the Supervisory Committee. We place great emphasis on building a diversified and independent board of directors, optimizing its composition to ensure scientific and impartial decision-making. At the same time, we have established standardized operational mechanisms of the Shareholders' General Meeting, the Board of Directors, and the Supervisory Committee, ensuring that information disclosure is compliant with legal requirements. This has enabled us to construct a modern corporate governance system that is scientifically standardized, effectively balanced, and highly efficient.

◆ Governance Structure

The company's governance structure is comprehensive, consisting of the Shareholders' General Meeting, the Board of Directors, and the Supervisory Committee. The Board of Directors has four specialized committees: Strategy, Risk, ESG and Compliance Management Committee, Audit Committee, Remuneration and Assessment Committee, and Nomination Committee.



Shareholders' General Meeting. The Shareholders' General Meeting serves as the highest authority of the company. The company strictly convenes and holds the Shareholders' General Meeting in accordance with the *Articles of Association*, the *Rules of Procedure for Shareholders' General Meeting*, and relevant regulations, thereby effectively safeguarding the legitimate rights and interests of both the company and all its shareholders. The company treats all shareholders equally, ensuring that every shareholder, especially small and medium shareholders, has equal rights and can fully exercise their rights.

Board of Directors. The Board of Directors is the decision-making body of the company. The company places great emphasis on enhancing the independence of board decision-making and governance. The nomination and election of independent directors are conducted in strict compliance with relevant laws, regulations, and the *Articles of Association*, and there are no relationships between the independent directors and the company that might compromise their independence. Independent directors diligently fulfill their duties and obligations, leverage their professional expertise, strictly maintain their independence, and actively engage in corporate governance and major affairs decision-making. In dedicated independent directors' meetings, they provide independent opinions on matters such as the company's regular reports, profit distribution, changes in directors, and related party transactions to ensure scientific and effective decision-making. Notably, both the Audit Committee and the Remuneration and Assessment Committee are composed entirely of independent directors.

Committees under the Board of Directors are highly responsible to shareholders, leveraging their respective professional expertise in areas such as strategic development, major investments, financial auditing, executive remuneration, and performance evaluation. They provide robust support for the Board's scientific and well-informed decision-making.

Supervisory Committee. The Supervisory Committee serves as the oversight body of the company. In accordance with laws and regulations, it oversees the company's financial situation, major matters, and the compliance of directors and senior management in fulfilling their duties, and provides independent opinions and recommendations to safeguard the legitimate rights and interests of the company, and shareholders, and to ensure the healthy development of the company.



Awarded the "2024 Outstanding Board Office Practice Case of Listed Companies" by the China Association for Public Companies



Honored with the "Golden Roundtable Award for Outstanding Board of Directors" at the 19th China Listed Company Board of Directors Forum by Board of Directors Magazine

Board Diversity

Shougang Co. upholds an open and inclusive philosophy and is committed to building a diverse, independent, and highly effective Board of Directors. The company implements a board diversity policy, taking into account factors such as gender, age, educational background, work experience, skills, and expertise to ensure diversity among board members. The board members possess extensive knowledge and experience across various fields including steel industry, law, finance, management, and more. They reflect diversity in terms of professional skills, industry experience, age, gender, and qualifications. As of December 31, 2024, the company has one female independent director.

Board Effectiveness

Within ESG framework, the evaluation of the Board's effectiveness is particularly critical. The Board of Directors effectively manages associated risks, and ensures the company operates in compliance with regulations. Simultaneously, the Board of Directors enhances the transparency of ESG disclosures, and fosters effective communication with stakeholders.

4 Shareholders' General Meeting were held

8 Meetings of the Board of Directors were held

47 Proposals were passed after deliberation

5 Specialized meetings of independent directors were held

7 Proposals were passed after deliberation

7 Meetings of the Supervisory Committee were held

29 proposals were passed after deliberation

11 Meetings of the Board's specialized committees were held

16 Proposals were passed after deliberation

1 Meeting of the Strategy, Risk, ESG and Compliance Management Committee was held

1 Proposal was passed after deliberation

5 Meetings of the Audit Committee were held

9 Proposals were passed after deliberation

1 Meeting of the Remuneration and Assessment Committee were held

1 Proposal was passed after deliberation

4 Meetings of the Nomination Committee were held

5 Proposals were passed after deliberation

Shougang Co. recognizes the importance of the independence of the Board of Directors in corporate governance. In accordance with the *Company Law of the People's Republic of China*, the *Securities Law of the People's Republic of China*, and other relevant laws and regulations, as well as the provisions of the Articles of Association, the company has established the *Working Regulations for the Specialized Meeting of Independent Directors*. At the same time, the company places great emphasis on the selection and appointment process of independent directors, ensuring that they possess sufficient professional knowledge and experience to perform their duties independently without being influenced by major shareholders, actual controllers, or other stakeholders. In accordance with the China Securities Regulatory Commission's *Management Measures for Independent Directors of Listed Companies* and other relevant regulations, independent directors conduct annual self-assessments of their independence, and the company evaluates the independence of incumbent independent directors and prepares a "Special Report on the Independence of Independent Directors". This report is submitted to the Board of Directors for review and disclosed alongside the annual report. Independent directors conduct on-site research and provide effective recommendations on shareholder returns, market value management, cost reduction and efficiency improvement, etc.

As of December 31, 2024, the Board of Directors consists of eight directors, including four independent directors. The professional backgrounds and areas of expertise of these four independent directors cover steel, finance, law, and financial management.

Factors considered in strengthening the independence of the Board of Directors:

Professional Knowledge and Experience: Independent directors should have extensive professional knowledge and industry experience to provide valuable advice and insights to the company.

Independence: Independent directors should remain independent from the company's major shareholders, actual controllers, or other stakeholders, and must not have any conflict of interest with the company, ensuring objective review and decision-making.

Diversity: In selecting independent directors, the company takes multiple factors into consideration, including gender, professional background, and industry experience, to ensure that the Board's decision-making reflects diverse interests comprehensively.



➤ Institutional System

In accordance with the *Company Law of the People's Republic of China*, the *Securities Law of the People's Republic of China*, the *Code of Corporate Governance for Listed Companies*, the *Listing Rules of Shenzhen Stock Exchange*, and the *Self-Regulatory Guidelines No. 1 for Companies Listed on Shenzhen Stock Exchange—Standard Operations of Main Board Listed Companies*, Shougang Co. has established a comprehensive internal control system. The company actively promotes the improvement of its corporate governance structure, continuously enhances standardized operations, improves governance standards and quality, innovates communication channels, maintains good investor relations, and safeguards the legitimate rights and interests of the company and all shareholders.

In 2024, the following regulations were formulated or revised upon approval by the Board of Directors or the Shareholders' General Meeting:

● Formulated

Working Regulations for the Specialized Meeting of Independent Directors of Beijing Shougang Co., Ltd.

● Revised

Articles of Association of Beijing Shougang Co., Ltd.
Rules of Procedure for Shareholders' General Meeting of Beijing Shougang Co., Ltd.
Rules of Procedure for Board of Directors Meeting of Beijing Shougang Co., Ltd.
Rules of Procedure for Supervisory Committee Meeting of Beijing Shougang Co., Ltd.
Independent Director System of Beijing Shougang Co., Ltd.
Financial Management System of Beijing Shougang Co., Ltd.
Internal Control Management System for Related-Party Transactions of Beijing Shougang Co., Ltd.



Information Disclosure

Shougang Co. strictly complies with the regulations of the China Securities Regulatory Commission and the Shenzhen Stock Exchange, and has established and improved a series of systems, including the *Information Disclosure Management System*, the *Insider Information Registration and Management System*, the *Subsidiary Management System*, and the *Information Classification and Management Measures*. These systems form a robust internal information transmission and confidentiality management framework, ensuring that the company's information disclosures are legal, compliant, and transparent. In recent years, to strengthen standardized operations, enhance the quality of information disclosure, and effectively support market value management, the company has integrated more investor-focused content into its announcements. For instance, the company's periodic reports now include production volume details of key products. The company proactively responds to regulatory guidelines, and voluntarily discloses Sustainability Report, the *Green Low-Carbon Steel Supply Chain Cooperation Memorandum* with BMW Brilliance and the "Quality and Returns Enhancement" Initiative, significantly improving transparency and investor access to corporate information.

In 2024, the company closely monitored regulatory developments, aligning disclosures with the latest policy requirements and operational realities. Information was disclosed comprehensively, transparently, and in a timely manner to investors and the public. Throughout the year, the company completed 27 information disclosures, submitting 252 filings to the Shenzhen Stock Exchange, including 121 public disclosures and 131 regulatory filings.

In strict compliance with regulatory rules and focusing on investor concerns, the company has prepared and disclosed four periodic reports (including the annual report published in both Chinese and English). These reports truthfully and accurately reflect the company's operational performance, highlights of performance, critical product updates, and future development plans during the reporting period.

In close alignment with the company's operational realities, we ensure the timely and accurate disclosure of significant matters and their progress, guaranteeing that investors are promptly informed of the company's critical information.

Around the work arrangement of the company's market value management initiatives, we proactively disclosed the annual sustainability report in both Chinese and English, announcements regarding collaborations with key clients, as well as the "Quality and Returns Enhancement" Initiative. These efforts have further enhanced the company's initiative and transparency in information disclosure.

121 Public disclosures completed

Investor Relations Management

In 2024, in accordance with the *Investor Relations Management System of Beijing Shougang Co., Ltd.*, the company actively and thoroughly promoted investor relations management, responding to investors' concerns regarding corporate governance, market value management, dividend policies, and future development plans.

To strengthen investor engagement, the company implemented multiple measures, including organizing on-site research visits and conference calls with securities firms and investment institutions, compiling key insights, and publishing investor activity records in a timely manner. We have also facilitated communication channels for retail investors, proactively responding to inquiries on the SZSE Interactive Easy, and maintaining an investor inquiry hotline to collect investor concerns. These concerns are conveyed to the management team for review and official responses. Regarding earnings briefings, the company has hosted high-quality earnings briefings, utilizing live video broadcasts and online interactive sessions to present the company's business performance and answer investor questions. The meeting records are published on the designated SZSE platform, and key information is disseminated through media channels to enhance investor communication.





Case: Investors Conducting On-site Research

After the disclosure of the company's Annual Report in April 2024, Shougang Co. organized Changjiang Securities and institutional investor E Fund to conduct on-site research. The visit covered key subsidiaries, including Qiangang Co., Jingtang Co., and Shougang Zhixin. During the visit, investors toured the company's key production lines and engaged in in-depth discussions with senior management and functional department leaders on topics such as product portfolio, business operations, and cost-efficient production. This research visit not only deepened investors' understanding of the company's operations and products but also demonstrated the company's commitment to transparency and proactive investor engagement, fostering long-term and stable investor relations.



Organized **6** investor communication sessions with **41** participants

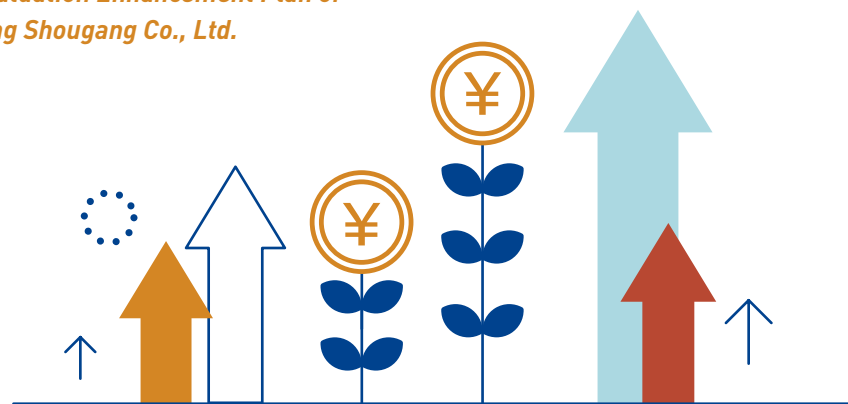
Responded to **176** investor inquiries on the SZSE Interactive Easy

Shareholder Value Creation

Shougang Co. actively responds to the requirements outlined in the *Regulatory Guidelines No. 10 for Listed Companies—Market Value Management*, thoroughly implements the spirit of the 20th National Congress of the Communist Party of China, the Central Financial Work Conference, and the State Council's *Opinions on Further Improving the Quality of Listed Companies*. The company is committed to enhancing corporate value through substantial improvements in quality and operational performance. The company remains focused on its core business and adheres to a strategy of green, intelligent, and high-quality manufacturing, continuously optimizing its product structure and customer structure to drive high-quality development. Shougang Co. attaches importance to the return to shareholder, explicitly defining profit distribution principles, review procedures, and distribution ratios in its *Articles of Association*. The company conducts profit distribution in accordance with laws and regulations, implementing a stable cash dividend policy to deliver tangible returns to investors.

In 2024, the company plans to distribute cash dividends totaling RMB 171 million, representing 111.54% of the parent company's standalone distributable profits, 37.67% of the consolidated distributable profits, and 36.30% of the consolidated net profit attributable to shareholders.

In March 2025, the company released the Valuation Enhancement Plan of Beijing Shougang Co., Ltd.



Integrity Ecology

Shougang Co. strictly complies with the *Criminal Law of the People's Republic of China*, the *Interim Provisions on Prohibiting Commercial Bribery*, the *Anti-Unfair Competition Law of the People's Republic of China*, and other relevant laws and regulations. The company continuously improves its internal systems, including the *Integrity Co-Development Notification Letter*, the *Compliance Management Measures for Procurement Business Partners of Beijing Shougang Co., Ltd.*, and the *Business Partner Code of Conduct Commitment Letter*, ensuring that all business activities are conducted with integrity and compliance. During the reporting period, no incidents of corruption were recorded.

The company conducts business collaborations with a professional, honest, and upright approach, strictly adhering to the highest standards of business ethics to ensure integrity in our operations. We respect the principles of market competition, actively promote and uphold a fair and free competitive market environment, and firmly oppose any form of unfair competition, monopolistic practices, or money laundering. Comprehensive management measures are implemented to address anti-monopoly and anti-money laundering efforts. The company places great emphasis on fostering a corporate culture of integrity and compliance, resolutely resisting any form of corrupt practices. Any instances of corruption, fraud, or other non-compliant behaviors are met with a zero-tolerance policy.

➤ Anti-Corruption and Anti-Bribery

The company places great emphasis on fostering a corporate culture of integrity and ethical conduct, adhering to the principles of honesty and compliance while firmly opposing any form of corruption. We continuously strengthen integrity initiatives by establishing and enhancing a comprehensive risk prevention system to mitigate ethical risks.

The company has formulated and issued multiple anti-corruption and integrity systems, including the *Regulations on Anti-Corruption and Integrity Education and Training*, the *Cross-Position Management System for Personnel with Business Disposal Authority*, the *Measures for Testing the Knowledge of Integrity Laws and Regulations Before Leaders Take Office*, the *Disciplinary Accountability*

Management System for Party Members, and the *Employee Misconduct Handling Regulations*. These systems are strictly enforced in daily operations, and they are revised and improved in time according to the new situation and new requirements. The company has also established a comprehensive supervision system that is deeply integrated with production and operations. The "Holistic and Practical Innovation in Building an Integrated Supervision System Aligned with Business Operations" initiative was awarded the First Prize at the 20th Annual Conference of the National Steel Industry Discipline Inspection and Supervision Research Association, demonstrating the effectiveness of the company's integrity governance framework.



Reporting Channels

Shougang Co. has implemented a four-in one reporting system, including letters, visits, online reporting, and telephone reporting. The company strictly enforces Party discipline and regulations, diligently investigates reported issues, and maintains a high-pressure stance against corruption.

Reporting Hotline: 0315-7708606

Reporting E-mail: lxzx@sgqg.com

➤ Anti-Commercial Bribery

Shougang Co. actively collaborates with business partners to promote integrity co-development. Each year, the company signs integrity co-development agreements with key upstream and downstream customers and suppliers and sends the *Integrity Co-Development Notification Letter* to suppliers during major holidays, fostering a clean and ethical business environment.

To strengthen supplier management and integrity practices, the company has established and continuously improved supplier admission, process supervision, and exit mechanisms. We have issued several supplier-related management systems, including the *Procurement Supplier Management Measures*, the *Raw Material and Fuels Procurement Quality Management Measures*, and the *Compliance Management Measures for Procurement Business Partners*. These systems help standardize business practices and ensure transparent transactions.

Before establishing a business relationship, the company carefully screens counterparties, third parties, and applicants. All contracts signed between the company, its subsidiaries, suppliers, and contractors include integrity clauses to build a transparent supply chain. The company also regularly organizes "Integrity Co-Development" exchange meetings with internal departments and stakeholders, and sessions focusing on studying business ethics policies and regulations, such as the *Integrity Co-Development Notification Letter*, the *Compliance Management Measures for Procurement Business Partners*, and the *Business Partner Code of Conduct Commitment Letter*. We also provide reporting and feedback channels to reinforce integrity commitments.



Case: Integrity Co-Construction Conference

In 2024, Shougang Co. organized the Integrity Co-Construction Conference, attended by heads of grassroots units and leaders from 22 partner organizations. During the conference, the company reviewed and summarized the achievements and experiences of integrity co-development initiatives carried out with partners throughout 2024. Additionally, the company outlined the direction for integrity efforts in the coming year. Through integrity co-development, the company aims to further strengthen collaboration and establish a harmonious, transparent, ethical, and secure business relationship with partners.



➤ Integrity Risk Prevention and Control

Shougang Co. continuously strengthens risk assessment capabilities and enhances its integrity risk prevention and control system. To improve dynamic management of supervisory personnel, the company conducted a comprehensive update of supervisory personnel information. Additionally, the company developed the *Implementation Plan for Cross-Department and Cross-Position Rotation of Personnel with Business Disposal Authority*, further reinforcing the integrity risk management framework.

Through a detailed review, the company identified 821 key supervisory personnel, conducted an in-depth review of 308 business processes, and detected 945 integrity risk points. To effectively mitigate these risks, the company developed 1538 specific preventive measures, ensuring a structured and proactive approach to integrity risk management. In 2024, 100% of operational sites underwent corruption risk assessments.

The company strictly complies with the *Audit Law of the People's Republic of China* and has established relevant systems such as the *Internal Audit Management System* and the *Construction Project Audit Management Measures*. Through auditing, discipline inspection, and internal control

821 Key supervisory personnel identified

945 Integrity risk points detected

1538 Preventive measures developed

procedures, the company identifies high-risk business activities to ensure operational compliance. The company conducts business ethics audits covering all business and operational departments, with increased audit frequency as needed based on specific business risks.

During the reporting period, the internal audit coverage across all departments and operations was 100%.

➤ Integrity Culture Development

Shougang Co. has deepened its integrity culture education to foster a rigorous and disciplined atmosphere. The company organizes warning education conferences, selecting over 20 typical cases to reinforce the deterrent effect. We also conduct integrity compliance warning education training courses, with more than 150 key personnel participating, using various methods to enhance employees' awareness of integrity and self-discipline. Furthermore, the 5th Integrity Culture Month is held to exchange and share experiences in building an integrity culture, and case studies are compiled for grassroots Party organizations to reinforce daily warning effects.

Jingtang Co. strengthens its warning education by arranging visits to warning education bases and holding training sessions for newly appointed cadres. Jingtang Co. collects cases of violations, edits and distributes educational materials, and organizes to watch warning films to establish a strong sense of discipline and rules. The company formulates anti-corruption and integrity training programs to deepen the concept of integrity, conducts studies on the family traditions of renowned figures, edits and distributes videos promoting honesty, and organizes joint integrity initiatives to advance the construction of a new-era integrity culture.

➤ Fair Competition

Shougang Co. adheres to the principles of free and fair competition and firmly opposes any form of monopoly or unjust enrichment. The company strictly complies with the *Anti-Unfair Competition Law of the People's Republic of China*, the *Civil Code of the People's Republic of China*, and other relevant laws, regulations, and international standards, and establishes and perfects a fair competition mechanism grounded in integrity. For any clues of unfair competition discovered through self-inspection or received through reports, the company conducts special investigations to promptly curb improper competitive behavior. In addition, periodic reviews of subsidiary projects are conducted to prevent unfair competition risks; please refer to the "Integrity Risk Prevention and Control" section of this report. During the reporting period, the company was not involved in any litigation related to monopoly or unfair competition.

Regarding Employees and Suppliers: The company conducts annual training for employees and suppliers on compliance with business ethics laws and regulations, including the *Criminal Law of the People's Republic of China*, the *Anti-Unfair Competition Law of the People's Republic of China*, and the *Anti-Money Laundering Law of the People's Republic of China*. Bribery is strictly prohibited, and all employees with potential corruption risks must undergo training. Please refer to the "Integrity Culture Development" section of this report.

Regarding External Communications: To foster a fair competitive market environment and safeguard consumers' legitimate rights and interests, the company strictly controls external communications and portal website management in accordance with its *External Communications Work System and Portal Website Management System*. The company prohibits false advertising, adheres to the principle of truthful and accurate publicity, establishes a robust review mechanism, strengthens awareness of anti-unfair competition, and accepts public supervision.

Risk Management

Shougang Co. has established a comprehensive risk management framework by formulating and implementing systems such as the *Risk Management System*, the *Compliance Risk Identification, Assessment, and Control Measures*, the *Major Decision-Making Social Stability Risk Assessment Management System*, the *Information Risk Assessment Management System*, the *Information Security Risk Assessment Measures*, the *Safety Risk Classification Control and Hazard Investigation Management System*, and the *Safety Production Risk Monitoring and Early Warning System Management Measures*. These systems optimize and enhance the evaluation standards for compliance and business risks. The company has thoroughly reviewed its business processes, accurately identified potential risks, and effectively integrated risk assessment outcomes into key risk management, business process evaluation, and system formulation. Additionally, the company strengthens risk monitoring and management for critical control activities, continuously enhancing its risk governance efficiency and risk mitigation capabilities.

➤ Risk Management Framework

The company has established a comprehensive risk management framework in accordance with the *Work Regulations of the Strategy, Risk, ESG and Compliance Management Committee of the Board of Directors*. The Strategy, Risk, ESG and Compliance Management Committee of the Board of Directors serves as the highest management body for risk management in the company. It is responsible for studying risk and compliance management systems, providing comprehensive guidance, supervision, and evaluation of compliance management; urging the company to establish and improve its risk and compliance management system and ensuring its effective execution; and professionally assessing and reporting on major risk matters for the Board's review. The Investment and Risk Assessment Group, a sub-committee under the Strategic, Risk, ESG and Compliance Management Committee, is responsible for constructing the company's risk management system, controlling key risks, managing risks in specific professional areas, and formulating and implementing the risk management work plan.

In accordance with the company's *Work Regulations of the Audit Committee of the Board of Directors*, the Audit Committee takes the ultimate responsibility for supervising and auditing the risk management performance during the company's operations. The Board Secretary Office coordinates with the company's audit, finance, and other departments to organize the preparatory work for implementing the Audit Committee's decisions. The Audit Department is responsible for supervising and evaluating the establishment and operation of risk control systems in various departments. Additionally, the Audit Committee is composed of three independent directors, with the Chairperson being an accounting professional, to ensure the professionalism and independence of the Audit Committee.

Three Lines of Defense for Risk Management



➤ Risk Management System

The company incorporates ESG-related risks into its risk management system to ensure that sustainable development factors are fully considered alongside economic growth. Risk management is categorized by the area of occurrence into five types: strategic risk, financial risk, market risk, operational risk, and legal risk, covering ESG-related risks. The company's *Risk Control Manual* comprises 29 primary processes, 107 secondary processes, 384 tertiary processes, 496 key control points, and 391 business process flowcharts, including safety management, procurement management, legal management, risk control management, environmental management, technology and quality management, technology management, energy management, tax management, and stakeholder management.

In 2024, the company, centered on its business objectives, analyzed key factors in each segment of the industry. Through identification and assessment, we determined 10 risk areas that have a significant impact on its operations, such as product price fluctuations, adjustments in environmental policies, and the ratios of accounts receivable and inventory. These risk areas span

market, policy, and financial dimensions. and pose potential challenges to the company's stable development. Consequently, the company has incorporated these 10 risks into its specialized risk control management, and by developing targeted preventive measures, it has effectively mitigated risk impacts, ensuring the smooth achievement of its business objectives.






Case: Focusing on Key Tasks, Strengthening Supervision, and Preventing Risks

In 2024, Shougang Co., centering on key tasks, strictly implemented risk assessment measures. Each department and subsidiary was organized to conduct comprehensive risk self-inspections in line with the principle of comprehensiveness. These inspections and evaluations covered key business areas such as corporate culture, social responsibility, R&D, human resource, production, inventory, procurement, and sales. At the same time, the company also conducted inspections and evaluations on subsidiaries' organizational structures, policies, procurement, sales, monetary funds, contracts, safety, and environmental protection, continuously focusing supervision on key areas to effectively prevent risks.

In 2024, the company strictly adhered to the specific requirements of the *Risk Control Management Measures* and the *Guiding Norms for the Basic Risk Management Process* to carry out risk assessment work. Following the basic process of risk information collection and identification, risk assessment, risk management strategy formulation and response, risk management supervision and improvement, and risk management reporting, the company systematically and standardizedly advanced its risk management efforts. We identified, analyzed, and evaluated the risk factors that could affect the achievement of our 2024 objectives and key tasks, comprehensively mitigated the identified risks, dynamically monitored and supervised them, and strengthened the role of the second line of defense within the risk management functional department. These measures further enhanced the comprehensive risk control capability and safeguarded the sustainable development of the company.

Part of Risk Response Measures of Shougang Co. in 2024

Risk	Countermeasures
 Raw Material Price and Supply Risk	We focus on national policies and combine macroeconomic conditions with analysis of upstream and downstream markets to adjust procurement strategies in a timely manner, with an emphasis on effective inventory control of raw materials. Each production base dynamically adjusts its inventory according to market changes, ensuring normal supply while maintaining reasonable inventory levels. Contingency plans are developed to ensure orderly supply during special periods. Furthermore, resource scheduling and logistics organization are strengthened to achieve balanced delivery. Flexible procurement methods are adopted to broaden resource channels and improve procurement cost-effectiveness.
 Product Price Risk	We identify and issue early warnings for risks that may lead to a decline in sales prices. Based on actual market conditions, countermeasures are formulated in advance, hedging actions are taken, and product price risks are managed accordingly.
 Production Safety Accident Risk	We adhere to a safety culture as the guiding principle; rely on safety standardization as the main framework for regulatory guidance; focus on mechanism development by moving critical control points forward; and emphasize on intrinsic safety management. This comprehensive approach advances the modernization of the safety production governance system and governance capability, thereby enhancing the ability to prevent and mitigate safety risks.

86 Audit projects were organized and implemented

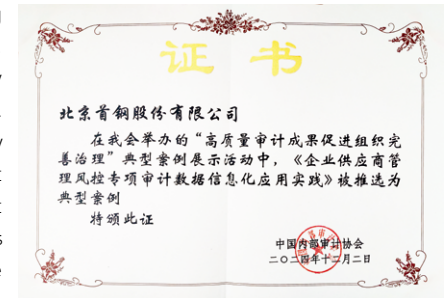
100% Audit coverage

➤ Risk Audit and Supervision

The Audit Department of the company undertakes the responsibilities of risk audit and supervision, fully implementing the audit plan and conducting in-depth audits on economic responsibilities, engineering projects, and other areas. It continuously improves the risk control system to effectively prevent and respond to various risks in the company operations. At the same time, strict compliance reviews are enforced with an emphasis on rectification and implementation. Through targeted inspections, the company ensures that rectification responsibilities are properly assigned, thereby improving the level of compliance. The company actively innovates in the application of compliance management and audit outcomes by integrating the concept of risk audit and supervision, and breaks down the barriers to the utilization of audit results, internalizing audit methodologies into its information systems, and positioning audit findings as early business warnings to promote audit management innovation. In conjunction with its audit projects, the company conducts audit case presentations to enhance the professional competence and practical skills of its audit personnel.

In 2024, the company was honored with the title "Exemplary Case of High-Quality Audit Outcomes Promoting Organizational Governance Improvement" by the China Internal Audit Association.

In terms of internal control evaluation, the company formulated the *Internal Control Inspection and Evaluation Work Implementation Plan in 2024*. We conducted a comprehensive inspection of the company and its five subsidiaries-Jingtang Co., Cold-R Co., Shougang Zhixin, Steel Trading, and Qian'an Shougang Metallurgical Technology Co., Ltd.-and randomly sampled 55 primary processes, effectively enhancing the robustness and effectiveness of its internal control system.



➤ Compliance Management

Shougang Co. regards operating in full compliance with the law as fundamental to its survival and development. The company has strengthened the top-level design of its compliance management system and established a framework centered on basic management systems, supported by specialized management measures and guidelines for key areas. It has also developed a "Legal and Regulatory Identification List Library", a "Compliance Obligations List Library", and a "Compliance Risk Measures List Library" to provide basic principles for all company units, employees, and stakeholders through a combination of positive guidance and a negative checklist. This approach leads and drives all employees to work in a compliant, trustworthy, and disciplined manner. The company's compliance management system has been certified to meet the requirements of GB/T 35770-2022 and ISO 37301: 2021.

The company rigorously benchmarks against compliance management system standards and continuously improves its compliance framework. By integrating compliance management into overall operations and focusing on key areas and critical links, the company decomposes and implements compliance requirements into key positions, thereby seamlessly integrating compliance management with business operations.

3 Fundamental Management Systems

- Compliance Management System Manual
- Compliance Management Regulations
- Compliance Management Handbook

4 Specialized Compliance Systems in Key Areas

- Safety Production Compliance Audit Management Measures
- Environmental Protection Compliance Management Guidelines
- Compliance Management Measures for Procurement Business Partners
- Asset Compliance Management Guidelines

6 Supporting Systems

- Compliance Objectives and Policies Management Measures
- Compliance Risk Identification, Assessment and Control Measures
- Compliance Internal Audit Management Measures
- Compliance Monitoring and Reporting Management Measures
- Compliance Management Review Measures
- Compliance Reporting and Investigation Management Measures

Case: Jingtang Co. Legal Compliance Culture Construction

In 2024, to enhance compliance and risk control talent development, Jingtang Co. established a legal compliance and risk control talent pool, covering 27 departments with a total of 37 personnel, thus providing the necessary talent support for the smooth advancement of compliance work.

Jingtang Co. has cultivated a strong corporate compliance atmosphere by organizing 8 sessions of specialized training, including compliance management training and new Company Law training, to enhance practical compliance skills and ensure the successful implementation of compliance initiatives. Additionally, by establishing a dedicated column for compliance and legal study, and the promotion of legal awareness during the Civil Code Promotion Month, Jingtang Co.'s employees published over 42 related articles.

Case: Shougang Co. Held a Compliance Management Knowledge Competition

In January, 2024, the final round of the Compliance Management Knowledge Competition was held. This competition popularized compliance knowledge, deepened the concept of compliance, strengthened compliance awareness, and promoted a culture of compliance, achieving the goal of fostering learning through competition and driving action through learning.



Case: Jingtang Co. Coordinated Overall Planning to Propel Compliance Management to New Heights

Jingtang Co. focused on core compliance areas by formulating the *Shougang Jingtang Legal and Compliance Work Plan in 2024*, which encompasses 11 work programs, targets 64 risk points, deploys 97 targeted governance measures, and tackles 78 key tasks, thereby completing a phased review and optimization of its compliance efforts. At the same time, 823 regulatory requirements were identified, 67 of which were directly implemented, and 103 core systems were linked, achieving a 100% integration rate of laws and regulations. In addition, 628 compliance obligations were sorted out and 81 compliance risks were identified.

Furthermore, Jingtang Co. expanded the scope of its compliance management by promoting the establishment of compliance systems in 6 joint venture subsidiaries, thereby achieving comprehensive regional compliance control. Jingtang Co. also innovatively developed an intelligent operation management platform to strengthen control over key processes and promote deep integration of risk control, compliance, and regulatory frameworks. Lastly, 78 sets of subsidiary articles of association, investment plans, and rules and regulations were reviewed, comprehensively elevating the company's overall level of compliance management.



➤ Tax Management

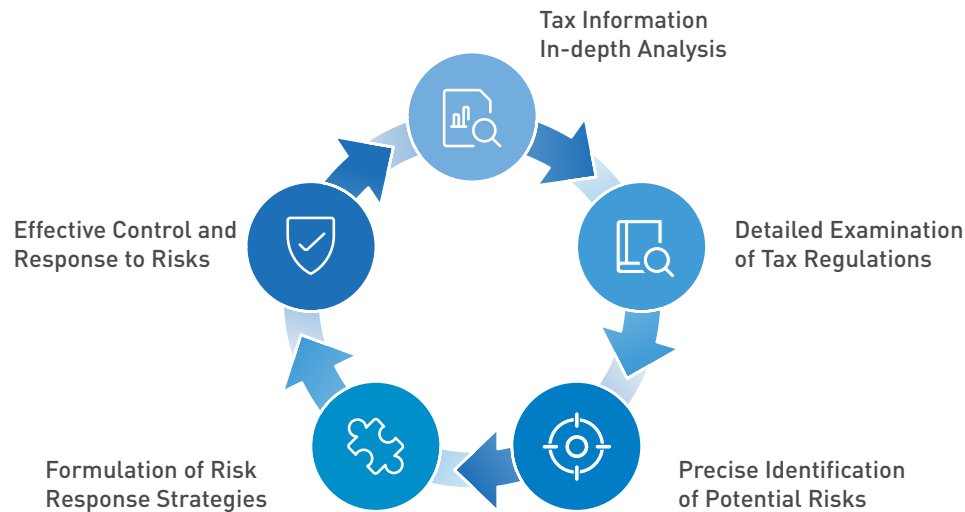
The company has established a comprehensive and robust tax management system to ensure tax compliance, effectively prevent and control tax risks, and continuously enhance the effectiveness of tax management.

Regarding the organizational structure of tax management, the company has established a dedicated tax management function responsible for overall tax policy and tax risk control for both the company and its bases. Additionally, we provide tax guidance and consultation to our subsidiaries to ensure consistency and synergy in tax management.

The company has built a systematic tax risk assessment and evaluation mechanism, implementing full-chain management of tax risks through advance warning, in-process control, and post-event evaluation. This mechanism covers every stage of tax-related accounting, declaration, monitoring, assessment, forecasting, and reporting, ensuring the standardization of tax operations through refined, process-oriented management.

To solidify the foundation of tax management, the company has formulated measures such as the *Tax Management Measures*, the *Implementation Management Measures for Pre-tax Deduction of Enterprise Income Tax for Asset Losses*, the *Implementation Management Measures for Pre-tax Deduction of Research and Development Expenses*, the *Management Measures for Special Additional Deductions for Individual Income Tax*, and the *Stamp Duty Management Measures*. The company continuously enhances employee training to boost overall tax awareness and professional capability. Strict invoice management ensures compliant use of invoices to further reduce tax risks.

The company comprehensively controls its tax risks through an internal tax risk management system. When related laws and regulations change, the company promptly monitors applicable areas and conducts early reviews of potential risks, ensuring timely adjustments to its tax policies and sustained compliance.



Risk Levels and Responses: The company classifies tax risks into three levels: "Low Risk", "Medium Risk", and "High Risk". For different levels of tax risks, targeted response measures and reporting procedures have been established.

For Low-Risk Matters

The financial departments of subsidiaries, including Qiangang Co., Cold-R Co. and Shougang Zhixin, are directly responsible for handling them to ensure that the risks are timely and effectively controlled.

For Medium-Risk Matters

Approval must first be obtained from the general manager of the respective unit, including Qiangang Co., Cold-R Co., and Shougang Zhixin, and the relevant departments will handle the issues in accordance with the approval.

For High-Risk Matters

Must be submitted to Shougang Co. for approval, and under the company's guidance and supervision, a detailed response plan is formulated to ensure that the risks are properly resolved.

In addition, the company has established tax management systems and standards categorized by tax type, complemented by comprehensive systems for tax declaration, invoice management, and other tax-related procedures, to ensure that daily tax management is carried out in a standardized, orderly, and efficient manner. The establishment and implementation of these systems have not only improved the efficiency of tax management but also enhanced the compliance of tax operations.

Case: Tax-Enterprise Partnership, Conducting Tax Training

In 2024, as the individual income tax special additional deduction policy was further refined and improved, the company invited tax authorities to host policy briefings and Q&A sessions for employees. During the policy briefing, experts from the tax authorities provided a detailed interpretation of policy changes, the specific content of the special additional deductions, and the deduction standards. They illustrated the applicable scopes, filing conditions, and key considerations of various deduction policies through real-life case examples, helping employees accurately grasp the essence of the policies. A dedicated Q&A session was set up during the event to address employees' filing queries.

In the future, the company will continue to strengthen communication and collaboration with tax authorities, further enhancing its compliance level in tax payment and tax risk control, ensuring that tax management becomes more standardized and efficient.



Data Security and Customer Privacy

Shougang Co. attaches great importance to data security and customer privacy protection, continuously enhancing its information security defenses to ensure the safety of its data and the stable operation of its information systems.

◆ Network and Information Security Management System

In accordance with the principle of "unified planning by senior management, professional organization by information teams, and specialized responsibility by functional departments", the company has established a top-down network and information security management structure. A Network Security and Informationization Committee has been established, chaired by the General Manager and major leaders serving as members. This committee serves as the decision-making and management body for network and information security, responsible for major decisions and strategic planning. Under the committee, a Network Security and Informationization Office has been set up, led by the executive in charge of informationization, and is responsible for overseeing, coordinating, reviewing, monitoring, and addressing information security incidents. Each functional department is responsible for managing information security within its respective area, ensuring comprehensive and coordinated security practices across the organization.

The company strictly complies with the *Data Security Law of the People's Republic of China* and other applicable laws and regulations. We have established 18 internal information security documents applicable to all employees, including the *Information Security Policy Management System*, the *Data Management System*, and *Zero Trust System Management System*. These systems cover organizational structure, human resource, software development, infrastructure, operation and maintenance, supplier management, security risks, and compliance. An annual review of the information security management system is conducted to ensure the effective implementation of these systems. Qiangang Co. and Shougang Zhixin have obtained ISO/IEC 27001 surveillance certification. The company continuously improves its data security management system, with particular emphasis on the protection of sensitive data and personal privacy data. A company-level

monthly scheduling mechanism has been established to coordinate overall network security efforts and to ensure the proper implementation of all tasks. In 2024, no data security or customer privacy leakage incidents occurred.

◆ Network and Information Security Risk Management

Shougang Co. has established a network and information security risk management mechanism centered on prevention and continuous improvement. The company continually enhances its contingency plans and incident response mechanisms by setting up a three-tiered emergency response system that includes an IT emergency response plan, a system emergency response plan, and a business emergency response plan. Every year, an IT emergency response plan is drafted, an emergency drill plan is formulated, and drills are conducted with progressively increased testing frequency to ensure a swift response and effective handling in the event of a data security incident. The company implements a graded and classified management system for information security risk incidents. Upon detecting any suspicious activity, an emergency response process is immediately activated, which includes reporting, investigation, handling, and feedback. This ensures that data security incidents are addressed promptly and effectively, safeguarding the integrity and confidentiality of company information.

To prevent malicious programs, cyber-attacks, information sabotage, and other incidents that could compromise the confidentiality, integrity, and availability of its information assets, and to avoid major information security events, the company has implemented a series of initiatives focusing on emergency drills, information system security level certification, and information security awareness training.

Conducting Emergency Drills

The company regularly conducts two sets of systems switching and data recovery drills and holds network security emergency drills for each system annually. By simulating real-world scenarios, these drills test the feasibility and effectiveness of the emergency response mechanism. In addition, the company collects network and information security vulnerability data and conducts regular vulnerability scans to promptly identify and remediate potential security gaps, thereby ensuring system security and stability. In 2024, a total of 43 emergency drills were carried out, and the assessment confirmed the effectiveness of the emergency response plan system.

Enhancing the Security Safeguards of Information Systems

The company rigorously complies with the *Classified Protection of Cybersecurity Regulations* to advance classified cybersecurity protection for its information systems. To date, 37 information systems have successfully passed the classified protection evaluation. Building on this foundation, the company has fully implemented data security hardening measures, further strengthening the defensive capabilities of its information systems. In 2024, Jingtang Co. conducted a third-party evaluation on data security compliance and data security capability maturity, further strengthening its data security assurance capabilities.

Conducting Information Security Awareness Training

The company regularly organizes training and educational activities on information security and privacy protection for all employees to enhance their security awareness and skills. This initiative fosters a corporate culture of information security and privacy protection, significantly increasing employees' understanding and emphasis on network and information security. In 2024, a total of 19 training sessions were organized.



Qiangang Co. and Shougang Zhixin successfully obtained the ISO/IEC 27001 surveillance certification.



In 2024, Cold-R Co. completed the Trusted Information Security Assessment Exchange (TISAX) certification, secured the TISAX security label, and passed third-party audits.



Customer Privacy Protection

Shougang Co. places great emphasis on customer privacy protection. In its *Customer Information Management System of Steel Products*, the company has established detailed privacy protection policies and designated dedicated customer representative officers responsible for managing customer information. By strengthening internal management and conducting employee training to enhance overall privacy awareness, the company ensures that customer privacy is comprehensively and effectively protected. Moreover, by combining technical measures and management practices, such as enhanced data encryption, restricted data access permissions, and regular audits of privacy data, the company safeguards the security and compliance of customer privacy data during transmission, storage, and processing.

Case: Jingtang Co. Built a Comprehensive Data Security Integrated Management Platform

In 2024, Jingtang Co. completed the development of a comprehensive Data Security Integrated Management Platform that consists of nine key modules, collectively establishing a robust data security management system:

Data Collection Center Module

Thoroughly identifies data source information

Asset Management Module

Dynamically updates and synchronizes data assets

Policy Center

Comprehensive maintenance and management of various security policies

Control Center

Offers static data desensitization and an API protection gateway

Operations and Maintenance Center

Realizes the overall management of database operations and maintenance

Risk Monitoring Module

Integrates business operation logs to analyze and identify security incidents

Security Tools

Provides file watermarking and traceability functionalities

Knowledge Base

Supplies standards for sensitive word filtering and classification grading

System Management Functions

Realizes the overall control of the system

Furthermore, the platform considers the impact on the client environment by incorporating a host security management agent equipped with mechanisms for adapting to new applications and verifying uninstallation. Leveraging superior performance and a comprehensive knowledge base, the system guarantees that its performance and efficiency meet business requirements, significantly enhancing the company's data security management level and promoting the advancement of data security construction.



Material Issues for Response

Climate Response, Pollutant Discharge, Waste disposal, Ecosystem and Biodiversity Protection, Environmental Compliance Management, Energy Utilization, Water Resources Utilization, Circular Economy

Key SDGs Addressed



Environment

Protecting Clear Waters and Green Mountains Building an Ecological Homeland Together

Shougang Co. has implemented multiple carbon reduction technologies, building a low-carbon product system and actively creating a low-carbon supply chain. The company has established a rigorous and efficient environmental management organizational structure and working mechanisms, promoting green and sustainable development. We have also set up a well-structured and highly collaborative energy management framework, focusing on energy efficiency improvement and optimizing the energy structure to achieve green and low-carbon high-quality development. Adhering to the principles of a circular economy, Shougang Co. continuously promotes the efficient recycling of resources such as scrap and solid waste throughout the entire product lifecycle. Additionally, the company fully recognizes the importance of biodiversity, strictly complies with relevant laws and regulations, and consistently monitors the harmonious development of its factory environment and surrounding ecosystems.



2024 Highlights and Achievements

Qiangang Co., Jingtang Co. Passed Hebei Province's new A-level environmental performance evaluation

Qiangang Co., Jingtang Co. "Advanced Enterprise in Organizing and Promoting the Steel Industry Extreme Energy Efficiency Project Three-Year Benchmark Action in 2024"

Qiangang Co. Recognized as Energy Efficiency Benchmark Demonstration Enterprise for Dual Carbon Best Practice

Qiangang Co. Selected as a Typical Case for Industrial Wastewater Recycling in 2024

Jingtang Co. Awarded as "Energy Efficiency Benchmark Demonstration Factory for Dual Carbon Best Practice"

Jingtang Co. Recognized as "Water Efficiency Leading Enterprise", Selected as a National-level Typical Case for "Zero Waste Disposal Factory"

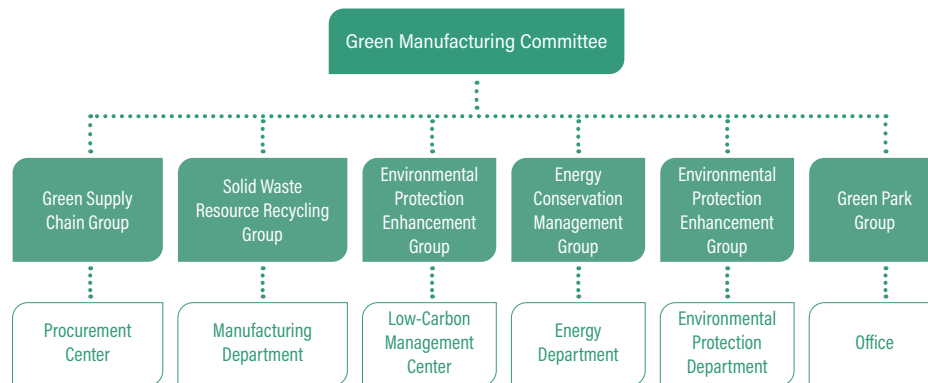
Shougang Zhixin Selected as National "Green Factory"



Climate Response

Governance

In 2021, Shougang Co. established the Green Manufacturing Committee, which comprises six specialized groups including the Green Supply Chain group and Low-Carbon Management group. In 2022, the Low-Carbon Management Center was founded to coordinate top-level design, strengthen unified management, and implement unified planning, thereby ensuring the effective execution of national policies and the precise implementation of related initiatives. During the reporting period, the company further improved its decision-making mechanism by establishing the Low-Carbon Leadership Group and the Promotion Working Group, responsible for initiating and breaking down specific low-carbon development tasks, effectively promoting the implementation of low-carbon projects and measures. Additionally, the company regularly organized project evaluation activities to ensure that all task objectives were completed as planned.



The company actively addresses climate change and continuously standardizes its climate governance management system. In accordance with regulations and requirements outlined in documents such as the *Interim Regulations on Administration of Carbon Emissions Trading*, the *National Climate Change Adaptation Strategy 2035*, and the *Responding to Climate Change: China's Policies and Actions*, and in close alignment with its actual conditions, the company has formulated the *Climate Governance Management System* and the *Carbon Emission Reporting and Verification Management System*. These systems ensure that its climate governance initiatives are carried out in a regulated and systematic manner. At the same time, the company continuously deepens the development of its Life Cycle Assessment (LCA) system, completes the annual collection of basic LCA data, and actively conducts product carbon footprint calculations.

Low-Carbon Management Center

Serving as the centralized management department for the company's climate governance. Its primary responsibilities include: Revising low-carbon related systems, organizing training sessions, ensuring the proper implementation of these systems, and monitoring compliance. Designing and optimizing the overall framework and business processes for low-carbon development, clarifying the responsibilities of relevant units, and coordinating the resolution of issues in operations. Leading the preparation of the company's low-carbon action plan by collaborating with relevant departments, setting phased greenhouse gas emission targets, and formulating corresponding implementation strategies.

Decision-making Level

Management/Supervisory Level

Execution Level

Low Carbon Leadership Group

Responsible for the overall planning, decomposition and implementation of the company's specific low-carbon development tasks.

Subsidiaries

Carrying out specific business tasks based on actual circumstances.



➤ Strategy

In 2023, the company released the *Shougang Co., Ltd. Low-Carbon Action Plan* focusing on extreme carbon reduction in integrated iron and steel plant and exploring mini mill (EAF) technologie. The company has established four basic low-carbon approaches: carbon emission reduction from source, carbon emission reduction by improving energy efficiency, collaborative carbon emission reduction, and social carbon emission reduction. The company is committed to optimizing the industrial structure, process structure, energy structure, and logistics structure to deeply construct a green and low-carbon development pattern.

Short-Term Strategy: Establishing a "Low-Carbon Product Dedicated Line" for Integrated Iron and Steel Plant

High-Proportion Pellet Ironmaking in Blast Furnace

The company continuously researches, develops, and integrates high-proportion pellet ironmaking technology in blast furnace to reduce carbon emissions. Jingtang Co.'s blast furnaces have an annual average pellet ratio of 54.3%; among these, the blast furnace supporting the low-carbon dedicated line achieves an annual average pellet ratio of 55.3%, with a maximum of up to 80%. Qiangang Co.'s three blast furnaces have an average pellet ratio of 37%, increase by 11 percentage points year-on-year, and the blast furnace supporting the low-carbon dedicated line achieves an annual average pellet ratio of 40%, increase by 13 percentage points year-on-year, with a maximum of 48%. Additionally, the company's newly commissioned belt-type travelling grate machine pellet production line consumes less than half the energy of a conventional sinter plant, significantly reducing energy consumption and decreasing CO₂ emissions.

Hydrogen-rich Injection in Blast Furnace Smelting

Qiangang Co. has actively conducted research and trials on hydrogen-rich injection in blast furnace smelting. During the trial period, the maximum injection rate of coke oven gas reached 3200 m³/h, equivalent to 10 m³/tHM [per tonne of hot metal]. The average displacement ratio for solid fuels reached 0.467 kg/Nm³, thereby reducing CO₂ emissions by 9.8 kg/tHM.

High Oxygen-rich Smelting in Large Blast Furnace

Jingtang Co. has carried out in-depth research on the behavior and requirements of high oxygen-rich smelting in large blast furnaces. Through innovative utilization of the combined "cryogenic+pressure swing adsorption" oxygen production process, on the premise of meeting the demand of high oxygen-rich of the blast furnaces, the energy consumption of oxygen for ironmaking is reduced to the greatest extent.



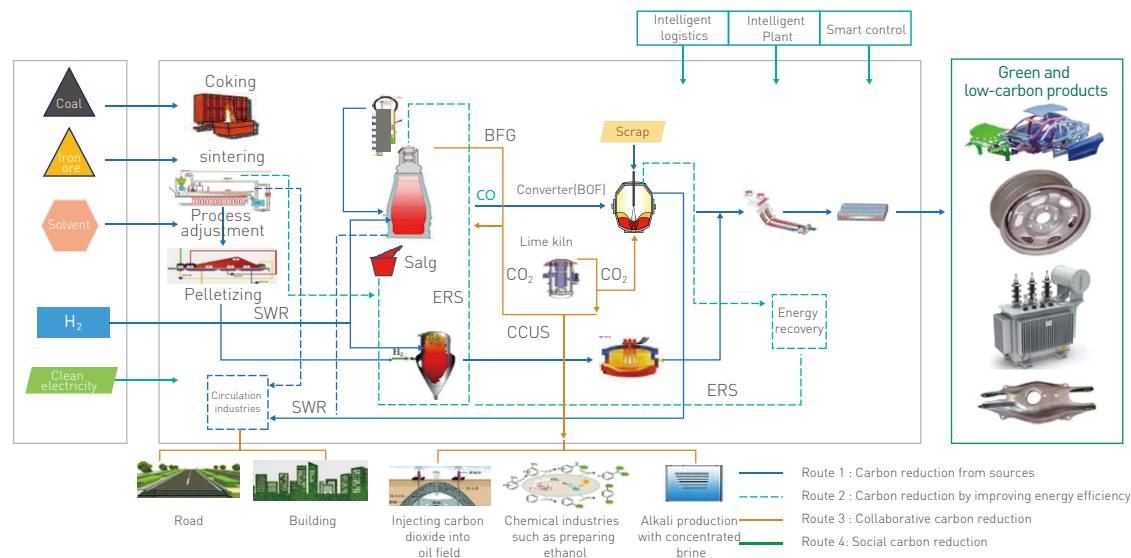
High Scrap Ratio Steelmaking in BOF

The company has conducted high scrap ratio trials, achieving continuous production with a 50% scrap ratio by whole casting. This capability allows for batch production of products with a carbon footprint reduction of over 40%, covering automotive sheets, household appliance sheets, high-strength steel, tinplates, and more.



Mid-term Strategy: Constructing a Near-Zero Carbon Emission EAF High-Quality Steel Production Line

The company is collaborating with Danieli Group, a world-renowned metallurgical technology and equipment supplier, to develop a near-zero carbon emission high-quality steel demonstration project. This project seamlessly integrates the extreme decarbonization of BF and BOF process with the deep decarbonization of innovative EAF methods, ensuring an orderly transformation. Once completed, the project will become the world's first production line featuring a deep coupling between BF-BOF and EAF steelmaking routes, and it will also be the world's first EAF line to produce high-quality automotive sheets and high-grade non-oriented electrical steel. By using 100% scrap and 100% green electricity, the products will achieve a 70% carbon reduction. Currently, a supporting 220 kV substation project has been initiated. Once completed, it will meet the power requirements of the EAF while also support the company's large generator units and the compliant integration of green electricity, thereby providing a foundation for the company's low-carbon transformation and development.



Shougang Co. Carbon Reduction Technology Route

Long-Term Strategy: Promoting Decarbonization through the Large-Scale Utilization of Green Hydrogen and Green Electricity

The company actively develops and expands green energy while researching and innovating low-carbon metallurgical technologies. We have independently designed and developed biomass coke co-injection device, which successfully completed an industrial trial of continuous injection of hydrogen-rich biomass micropowder at a scale of hundreds of tonnes, marking the first breakthrough in the utilization of biomass energy in steel metallurgy in China. In addition, the company continuously pays attention to the developments in the hydrogen industry and the distribution of hydrogen resources in surrounding regions, and tracks new technologies such as electrolytic seawater hydrogen production, hydrogen production through metal cracking, and solid oxide electrolytic hydrogen production. We also actively engage in external communication and cooperation to lay the foundation for the large-scale utilization of green hydrogen in the future.



Route 1: Carbon Emission Reduction from Source

- Develop low-carbon smelting furnace burden
- Develop efficient utilization technologies for recycled steel materials
- Develop efficient recycling technologies for secondary resources
- Promote low-carbon metallurgical technology innovation orderly



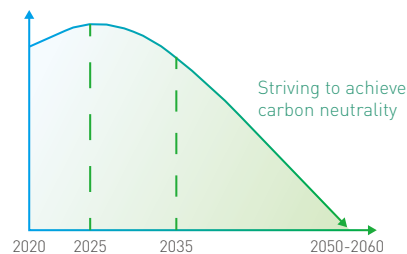
Route 3: Collaborative Carbon Emission Reduction

- Industry chains synergize to reduce carbon emissions
- Develop waste resourceization and productization technologies
- Research and development of CO₂ capture and resource utilization technology
- R&D and application steel and chemical co-generation technologies

Dual-Carbon Goals and Routes

Striving to reach the carbon peak

Aiming for a 30% reduction in CO₂ emission intensity



Route 2: Carbon Emission Reduction by Improving Energy Efficiency

- Construct the ultimate energy efficiency operation system
- Promote electrification of energy utilization
- Develop and apply clean energy
- Construct an smart energy management and control system



Route 4: Social Carbon Emission Reduction

- Establish product life cycle control system
- Develop high-performance and long-service performance low-carbon products
- Promote synergistic carbon reduction in downstream industries
- Construct green and low-carbon development concepts and models

➤ Risks and Opportunities Management

Risks and Opportunities Identification

Climate change poses direct and indirect risks to business operations. Proactively assessing and anticipating the impacts of climate change is crucial for ensuring a company's sustainable development. By integrating its business characteristics and operational conditions, Shougang Co. has conducted a systematic analysis and assessment to identify the following climate-related risks:

Risk Category		Risk Parameter	Potential Influence	Impact Level
Physical Risk	Acute Risk	The severity and frequency of extreme weather events (such as typhoons, floods, etc.) increase	Jingtang Co. is located on the coast of Bohai Sea and experiences 1-2 severe typhoons and extreme weather events each year. Especially in recent years, there has been a sudden increase in global extreme weather events, which may lead to impairment or loss of physical assets, as well as other potential economic losses.	Low
Transformation Risk	Policy, Laws and Regulations	Policy constraints, carbon pricing mechanism and costs	With the implementation of energy-conservation and emission reduction policies in the steel industry, as well as the implementation of environmental and carbon-related laws and regulations, the company will face rising carbon prices and carbon compliance costs, restrictions on coal use, and other energy transition policies, which will lead to corresponding increases in investment and operating costs.	Low
		Carbon tariff	The European Commission has announced the launch of the world's first Carbon Border Adjustment Mechanism (CBAM), imposing carbon tariffs on imported products, including steel and cement, which will restrain the company's exports of certain products.	Medium
	Technology and Cost	Low-carbon technology transformation	In response to China's 30-60 Decarbonization Goal and to achieve the company's "dual carbon" goals, significant investments will be required in the future for the research and development or application of low-carbon steelmaking technologies. The research and development process involves uncertainties.	Medium
		Transformation cost	During the low-carbon transformation process, the company will increase the use of renewable energy, new energy, and other energy conservation and environmental protection technologies. The application and investment in low-carbon steelmaking technologies will lead to an increase in the company's research and development costs and the risk of value loss of existing fixed assets.	Medium
	Market	Increasing demand for green and low-carbon products	With the deep adjustment period of domestic steel markets and the promotion of the green and low-carbon development trend throughout the industry chain, the market demand for green and low-carbon steel products will significantly increase. The industry competition will become more intense, and if the greenization progress is too slow, it may lead to a decrease in the company's market share.	Medium
		Rising costs of raw materials	Prices of energy and other resources will increase due to the impact of climate change, which will in turn affect the procurement costs of fuel and raw materials, resulting in increased costs and other risks.	Medium
	Reputation	Concerns of stakeholders regarding climate change measures	Investors and other stakeholders, as well as the public, will pay more attention to the company's response to climate change measures, and may even consider it a key factor in evaluating the company's performance. This could potentially pose reputation risks to the company, and resources need to be invested to strengthen carbon management in order to meet their expectations.	Low

Climate change is shaping and transforming the models of social and economic development, and presenting distinct opportunities for the sustainable growth of businesses. Upon analyzing the market and industry landscape, in alignment with our company's unique traits and strategic outlook, we have pinpointed the following opportunities:



Product and Service

The company will continuously research and develop green products with characteristics such as high strength, lightweight, long service life, and high corrosion resistance, such as high-performance non-oriented electrical steel, high-performance oriented electrical steel, automotive high-strength steel, and ultra-thin tinplate (chrome-plate). These efforts aim to build a low-carbon product portfolio while actively pursuing low-carbon product certifications to meet market and customer demand for products and services with low carbon emissions.



Energy Efficiency

By continuously refining our process technologies, fully leveraging waste heat and energy, researching and applying cutting-edge energy-conservation technologies, and employing big data and intelligent systems, we aim to construct an efficient smart energy management framework. This will enhance our resource and energy utilization, advance our efforts in energy conservation and carbon emission reduction, and minimize operational costs.



Energy Sources

We are committed to increasing the utilization of clean energy sources gradually to replace traditional high-carbon energy sources. We will enhance photovoltaic power generation capacity and increase the proportion of green electricity purchased from external sources. Additionally, we will further research and apply low-carbon technologies to reduce the company's energy expenditures and compliance costs, thereby supporting the achievement of low-carbon development goals.



Carbon Management and Trading

Establishing a robust carbon emission management platform is another focal area. By improving our carbon emission assessment system and actively engaging in carbon credit trading, we are intensifying our carbon management practices.

Risk Response Capability Enhancement

Continuously Advancing Decarbonization Efforts

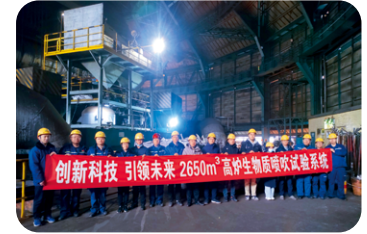
The company has formulated and issued the *Dual Carbon Control Work Plan in 2024*, established an organization to promote dual carbon initiatives, and implemented a dynamic tracking and periodic evaluation management mechanism. Decarbonization measures are being solidly advanced across eight aspects, including industrial green upgrading, clean energy utilization, and high efficiency of energy utilization, to ensure that all decarbonization initiatives are effectively implemented.

Process Green Upgrading

The company is continuously promoting the research and comprehensive application of decarbonization technologies such as high-proportion pellet ironmaking in blast furnace, hydrogen-rich injection in blast furnace smelting, and high scrap ratio steelmaking in BOF. This enables a green upgrade of processes and supports the implementation of the dual carbon strategic plan.

Conducting Cutting-edge Low-Carbon Technologies Research

The company has continuously focused on innovating low-carbon ironmaking processes and actively advanced the research and comprehensive utilizing of various decarbonization technologies, including carbon dioxide capture and utilization and steel slag carbonation technology. Qiangang Co. has completed a continuous injection industrial trial of hydrogen-rich biomass micropowder at the hundred-tonne level and plans to further conduct scale-up injection trials of hydrogen-rich biomass micropowder. In the pilot of steel slag carbonation technology, the best solid carbonation effect reached 20%. Jingtang Co. is actively exploring carbon dioxide capture from blast furnace gas. A pilot of blast furnace gas carbon dioxide capture at a capacity of 100 m³/h is proceeding as scheduled, and there are plans to establish an industrial trial unit for blast furnace gas carbon dioxide capture with a capacity of 3000 m³/h.



Case: Qiangang Co. Conducting Experimental Research on CO₂ Absorption from Flue Gas Using Steel Slag and Other Solid Wastes

In 2024, Qiangang Co. organized experimental research on the absorption of carbon dioxide from flue gas using steel slag and other solid wastes. Qiangang Co. successfully completed the installation and commissioning of a pilot facility for steel slag carbonation, processing 1000 m³ of flue gas. Additionally, carbon sequestration experiments were conducted on steel slag tailings, steel slag, desulfurization ash, and municipal sludge. The results showed that the carbon sequestration rate of steel slag tailings can exceed 18%, the carbon sequestration rate of steel slag can reach over 12%, and the carbon sequestration rate of flue gas was as high as 60%.



Case: Jingtang Co. Has Built the First "Carbon Dioxide Green and Clean Steelmaking Technology and Application" Project both Domestically and Internationally.

Jingtang Co., leveraging support from the National Science and Technology Support Program and the National Natural Science Foundation of China, took a pioneering approach to collaborative innovation and successfully developed the world's first "Carbon Dioxide Green and Clean Steelmaking Technology and Application" project, which was awarded the Second Prize of National Science and Technology Progress Award.

The project recovers carbon dioxide from lime kiln tail gas for use in BOF blowing, successfully addressing technical challenges in steelmaking such as dephosphorization, denitrification, oxygen control, and bottom-blowing longevity. It has the capacity to capture 50000 tonnes of carbon dioxide annually, establishes a small internal cycle of carbon flow, and paves a new path for large-scale carbon dioxide utilization and sequestration during the steelmaking process.

This technology has been included in the Hebei Province Low-Carbon Technology Promotion Catalogue and incorporated into the first batch of carbon dioxide capture, utilization, and storage pilot projects in Hebei Province.



Strengthening Cooperation with Users in the Application of Low-Carbon Products

The company has signed the *Green Low-Carbon Steel Supply Chain Cooperation Memorandum* with BMW Brilliance, reaching a cooperation intention on low-carbon emission steel materials within the supply chain. The cooperation includes the cooperative application of low-carbon emission products for vehicle body materials based on both BF-BOF processes and EAF processes. The company collaborated with Volvo and Zhejiang Yiyun to build a closed-loop steel recycling system, to explore more efficient resource utilization methods. In addition, as the only invited steel enterprise, the company participated in Volvo's "2024 Sustainable Development Technology Expo".

Building a Low-Carbon Product System

The company has formulated a capacity plan for low-carbon products, clarifying its production and manufacturing capabilities for low-carbon products over the next 3-5 years. We have also designed estimation models for the decarbonization effects and cost variations of low-carbon products, thereby mapping out implementation paths for products with different decarbonization ratios. Currently, the company has established corporate standards for 5 low-carbon products and developed a green low-carbon product trademark. Our products, including oriented electrical steel, pipeline steel, non-oriented electrical steel for new energy vehicles, and hot-rolled high-strength sheets and strips for automotive applications, have been recognized as "Green Design Products" by the Ministry of Industry and Information Technology.



Signed the *Green Low-Carbon Steel Supply Chain Cooperation Memorandum* with BMW Brilliance



Jingtang Co.

Jingtang Co. has the capacity for mass production of products with a carbon footprint reduction of over 40%, covering a wide range of sectors such as automotive sheets, household appliance sheets, high-strength steel, and tinplate(chrome-plate). Notably, Jingtang Co. successfully produced the first coil of automobile side panel with 50% large scrap ratio for Volvo, marking a significant milestone in the production of low-carbon products.

Shougang Zhixin

The product output of Shougang Zhixin's high magnetic induction, low iron loss, high-end electrical steel has been steadily increasing, continuously driving iterative upgrades of soft magnetic material products for new energy vehicles. To date, more than 20 specialized electrical steel products for new energy vehicles across 6 series have been developed. These products not only meet the design requirements for high power, high rotational speed, and high efficiency in future motors but also successfully overcome the challenge that high alloy and high magnetic induction can't be considered at the same time. This breakthrough enables the products to achieve ultra-low iron loss and ultra-high magnetic induction, thereby comprehensively enhancing manufacturability and new energy vehicle performance. High-end non-oriented electrical steel improves motor efficiency by 0.75%, saving 5.37 billion kWh of electricity per year for users and reducing carbon dioxide emissions by 3.06 million tonnes annually. Oriented electrical steel has been formed more than 60 products in 6 series with high magnetic induction, refined magnetic domains, low noise, no backing layer, low excitation, and medium frequency. Furthermore, high-performance oriented electrical steel enhances transformer efficiency ratings, reducing the energy consumption of no-load and load by 20% on average, which saves 3 billion kWh of electricity and cuts carbon dioxide emissions by 1.72 million tonnes every year.



Participated in Green and Low-Carbon Related Activities



Participated in Volvo's "2024 Sustainable Development Technology Expo"



Low-Carbon Product Certification

The company has achieved SCS Global Services certification for 50% outsourcing scrap ratio in coating and annealing products. We have completed third-party carbon footprint certifications for hot-rolled coil with zinc-aluminum-magnesium coating, cold-rolled coil with zinc-aluminum-magnesium, pre-painted galvanized products, as well as for conventional galvanized IF steel products and those with 50% scrap steel ratio. The carbon footprint is reduced by more than 40%.



Establishing Green Production Standards

The company led the formulation and implementation of the CISA Group Standard T/CISA 103-2017 of the *Specification for Green-design Product Assessment — Non-oriented Electrical Steel Strip for New Energy Vehicle*, significantly driving technological innovation, quality improvement, green manufacturing in the electrical steel sector, and the healthy development of the new energy vehicle industry. Additionally, the company led the formulation of 13 management evaluation standards, including *Evaluation Criteria of Green Production Management in Iron and Steel Industry* (group standard), incorporating advanced technical indicators and green manufacturing concepts into industry standards, guiding the industry towards sustainable and low-carbon development.



Product Environmental Declaration (EPD) Certification

In 2024, the company released EPDs for three products: hot-rolled pickling sheet and strip, thick plate (heat-treatment), and thick plate.



Enhancing Carbon Management Capabilities

As the steel industry prepares to be included in the national carbon market, the company has proactively planned and taken strategic measures to adapt. During the reporting period, the company organized or participated in over 30 low-carbon training sessions and exchange activities. These included internal initiatives to popularize carbon knowledge and external engagements, such as inviting experts and third-party consulting firms to conduct specialized seminars. These initiatives have effectively enhanced employees' awareness and expertise in carbon management.



Inviting External Experts for Training

Active Participation in the Carbon Market

With the relaunch of the National Voluntary Reduction of Greenhouse Gas Emissions and Emissions Credits Trading Market, the company has actively participated and successfully transferred 1.4872 million tonnes of Chinese Certified Emission Reduction (CCER) it held, generating revenue of RMB 107 million.

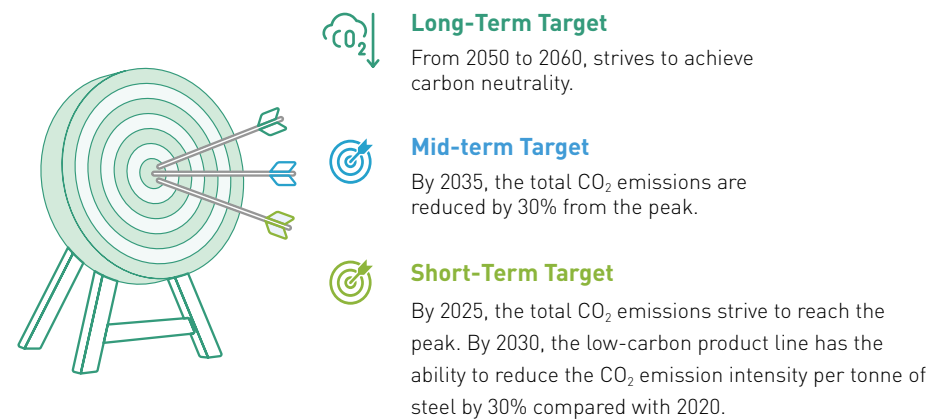
Intelligent Carbon Management Platform

The company has developed an intelligent carbon management platform with visual interfaces covering its bases. This platform supports a variety of applications including organizational management framework construction, data filling and storage, carbon data analysis and comparison, carbon account book management, carbon report generation, and multi-level panoramic display of carbon data. It ensures the traceability of carbon data and meets the monthly evidence storage requirements for key parameters once the steel industry enters the national carbon trading market, providing a scientific basis for subsequent carbon quota management.

Metrics and Targets

Targets Setting

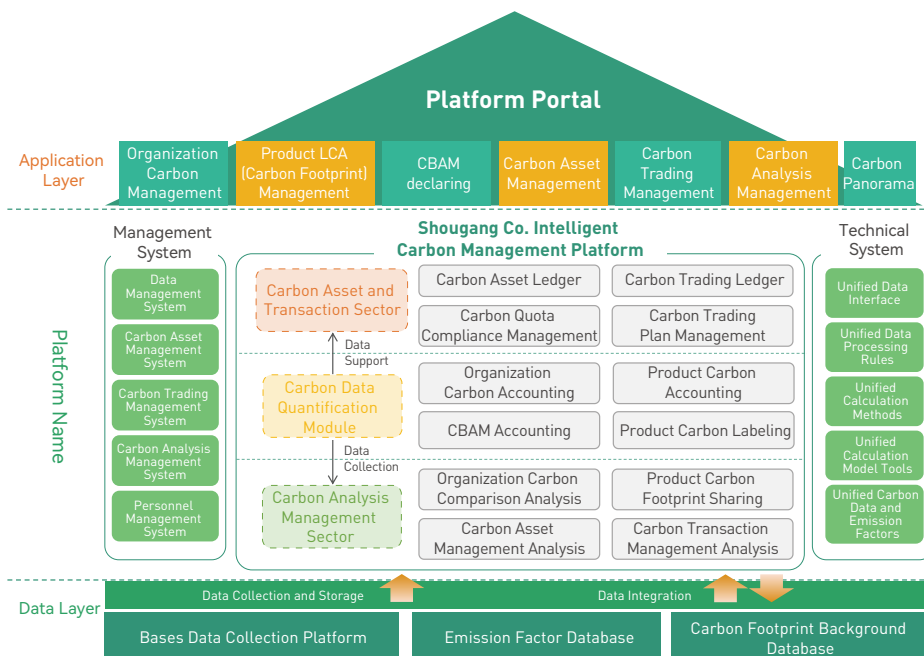
To achieve the goal of reaching carbon peak by 2025 and achieving carbon neutrality between 2050 and 2060, Shougang Co. has developed a phased, detailed plan.



Metrics Management

The company places great emphasis on carbon emission indicator management, maintaining strict routine tracking and monitoring of its direct and indirect greenhouse gas emissions and emission intensity. Additionally, in compliance with the *Guideline for Greenhouse Gas Emission Accounting and Reporting for the Iron and Steel Industry (CETS-AG-03.01-V01-2024)* and other accounting standards, the company conducts annual calculation and verification of direct and indirect greenhouse gas emissions within its operational control scope. In 2024, the company's total greenhouse gas emissions (Scope 1+Scope 2) amounted to 44,225,214 tonnes of CO₂ equivalent.

Indicator	Unit	2024
GHG Emissions (Scope 1)	tCO ₂ e	41,644,387
GHG Emissions (Scope 2)	tCO ₂ e	2,580,827
GHG Emissions (Scope 1 & 2)	tCO ₂ e	44,225,214



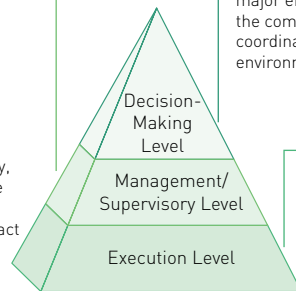
Environmental Management

➔ Governance

Shougang Co. has established a rigorous and efficient environmental management organizational structure and operational mechanism. The company has set up an Environmental Protection Leadership Group, responsible for the company's comprehensive environmental management work, studying major environmental issues within the company, making decisions, coordinating and solving important environmental problems. The Environmental Protection Department serves as the managing and supervisory body for environmental management, responsible for formulating environmental protection policies and regulations, continuously improving the company's environmental management system, and organizing the supervision and assessment of environmental performance. Subsidiaries, following the principle of localized management, are responsible for advancing the construction of professional environmental management systems and continuously enhancing their environmental practices.

Environmental Protection Department

Responsible for developing and enhancing the company's environmental management system, structure and goals. Additionally, this department oversees the monitoring, inspection, and evaluation of the company's environmental management effectiveness. This department coordinates efforts at enhancing the performance of each subsidiary, thus ensuring their compliance with legal requirements when conducting environmental impact assessments on construction projects.



Environmental Protection Leadership Group

Responsible for the company's comprehensive environmental management work, studying major environmental issues within the company, making decisions, coordinating and solving important environmental problems.

Environmental Protection Departments of Subsidiaries

Responsible for advancing the construction and continuous improvement of professional environmental management systems, and implementing laws, regulations, standards, and Shougang Co.'s environmental management policies, following the principle of localized management. They also develop emergency response plans for environmental incidents while organizing relevant drills.

To ensure and strengthen the company's environmental compliance management and promote green and sustainable development, the company has formulated 19 environmental management systems based on the *Environmental Protection Law of the People's Republic of China* and other relevant laws and regulations. These systems include the *Environmental Protection Management Measures*, *Environmental Protection Reward and*

Punishment Management System, *Environmental Protection Management System for Construction Projects*, *Air and Water Pollution Prevention and Control Management System*, and *Pollutant Discharge Permit Management System*, thereby establishing a comprehensive environmental management system.

In accordance with the requirements of GB/T 24001-2016 *Environmental Management Systems-Requirements with Guidance for Use*, the company has comprehensively advanced the construction of its environmental management system and has obtained ISO 14001 Environmental Management System certification, achieving a 100% certification rate. To further enhance environmental management standards, the company invites third-party organizations annually to conduct supervisory audits of the environmental management system to ensure its effectiveness.



The company continuously carries out supervision and management, and has scientifically formulated an environmental supervision work plan. During the reporting period, the company carried out over 200 environmental supervision and inspection sessions, covering 8 key areas, including post-management of pollution discharge permits and dust control. These inspections identified and rectified 583 environmental risks. For issues identified during inspections, the company implemented follow-up reviews and corrective measures, ensuring that all problems were resolved within the stipulated timeframe. Additionally, the company successfully passed 301 environmental inspections, including 23 national-level, 27 provincial-level, and 251 municipal/county-level inspections, reinforcing its commitment to green development and demonstrating a strong corporate environmental image.

Case: Shougang Zhixin Selected as National "Green Factory"

Shougang Zhixin has adhered to green and low-carbon development principles for many years, focusing on environmental construction and continuously increasing investment in energy conservation and environmental protection. The company has made significant efforts in areas such as energy conservation, environmental protection, clean production, and circular economy transformation. These efforts have laid a solid foundation for the establishment of a green factory, resulting in notable social and economic benefits. In 2024, Shougang Zhixin was selected as a "Green Factory" by the Ministry of Industry and Information Technology (MIIT).

Shougang Zhixin has consistently implemented clean production practices, adopting a combination of source reduction, process control, and end pollution treatment for pollutant management. In October 2023, the company passed the clean production audit with a level that is considered domestically advanced.

Shougang Zhixin places a strong emphasis on energy-conservation and emission reduction. From commissioning, we have established an energy-conservation leadership team and actively conducted energy-conservation diagnostics. During the energy diagnosis process, tailored energy-conservation technological measures were developed based on the company's actual production conditions.

Shougang Zhixin has focused on producing green products, with its grain-oriented electrical steel and non-grain-oriented electrical steel for new energy vehicles being recognized as green design products.

In 2024, Shougang Zhixin was awarded the national "Green Factory" title, setting a new benchmark for green development within the industry.

➤ Strategy

Shougang Co. adheres to the environmental management system policy of "compliance with regulations, pollution prevention, continuous improvement, and environmental friendliness". Following the development philosophy of "Green Transformation and Ecological Shougang Co.", the company pursues an innovation-driven, extreme environmental protection, and green development path, striving to build a "circular economy-based, energy-conservation and environmentally friendly, clean and efficient" next-generation metallurgical demonstration plant. The company actively implements pollution control and emission reduction measures to ensure that all process pollution emission indicators and unorganized emission control levels reach world-leading standards. Additionally, the company seriously fulfills its social responsibilities by comprehensively improving plant appearance and environmental conditions, laying the foundation for an ecological green steel plant that harmoniously coexists with its surroundings.

The company has set fundamental targets, including eliminating environmental pollution incidents, achieving a 100% compliance rate for comprehensive pollutant emissions, and maintaining a 100% synchronous operational rate for environmental protection facilities and primary production equipment, to continuously improve environmental quality. We uphold the principles of advanced and forward-looking technology selection and management models, near-zero pollutant emissions, and extreme environmental management. The company ensures that major pollutants consistently meet ultra-low emission standards, with per-tonne of steel emission performance indicators reaching advanced clean production levels, positioning its overall environmental performance among the world's best.

Environmental Governance

The company continues to deepen its environmental governance, with an annual investment of RMB 268 million in environmental improvements. Since 2016, we have cumulatively invested RMB 9.451 billion in environmental initiatives. During the reporting period, the company implemented a series of key environmental improvement projects, including hot blast stove upgrades, the addition of desulfurization facilities to thermal power and back-pressure steam turbine, and the construction of new charging stations for new energy heavy truck, effectively enhancing the ecological environment within and around the plant. Since 2019, the company has consistently been rated as A-level enterprise in environmental performance.

Project	Total Investment (RMB million)	Implementation Effect
Qiangang Co. Ironmaking Department Pelletizing No. 2 Denitrification Capability Enhancement Project	25.86	Meeting design standards requirements
Qiangang Co. Optimization Project of Burners of No.1 and No.4 Hot Stoves of No.3 Blast Furnace	17.01	Meeting design standards requirements
Qiangang Co. Energy Department Thermal Power and Back-pressure Steam Turbine Desulfurization Facility Addition Project	34.94	Meeting design standards requirements
Jingtang Co. Transportation Department Hot Rolled Coil Gantry Crane Yard Construction Project	29.60	Meeting design standards requirements

Project	Total Investment (RMB million)	Implementation Effect
Jingtang Co. New Energy Off-Road Mobile Machinery Charging Station Construction Project	15.22	Meeting design standards requirements
Jingtang Co. New Energy Heavy-track Charging Station Construction Project	16.96	Meeting design standards requirements
Jingtang Co. Steel Rolling Operations Department East Side of Back Area Dust Removal System Improvement Project	17.99	Meeting design standards requirements

Enhancing Professional Expertise and Establishing an Environmental Monitoring & Management System

The company continues to optimize its unorganized emission control system by establishing a real-time linkage model between production equipment control facilities and monitoring data while regularly updating the unorganized emission source list. Qiangang Co. has incorporated all 3117 dust-generating points into its management system with networked monitoring. Jingtang Co. has promoted the procurement and installation of monitoring equipment for carbon monoxide, particulate matter, sulfur dioxide, and nitrogen oxide in processes such as pelletizing, coking, and cold rolling, by thoroughly implementing the new A-level environmental performance standard requirements in Hebei Province.

Strengthening Radiation Compliance Management

Jingtang Co. has successfully organized the removal, storage, and transfer of 24 radiation sources from the coal preparation post in the coking operations department to Hebei Province's Urban Radioactive Waste Repository. Additionally, Jingtang Co. has completed the registration of its radiation safety license and other related procedures to ensure compliance and orderly management of radiation-related activities.



Efficient Advancement of DCS System Upgrades

The company has upgraded and improved its environmental Distributed Control System (DCS) in compliance with relevant guidelines from the Ministry of Ecology and Environment, Hebei Provincial Environmental Performance A-level standards, and Tangshan Municipal Bureau's DCS networking technical specifications. These enhancements have significantly improved the accuracy and quality of environmental data.



Conducting Environmental Training and Improving Awareness of Environmental Protection

The company actively promotes environmental training and awareness initiatives to strengthen employees' environmental consciousness. During the reporting period, we conducted 76 environmental training sessions, achieving 100% coverage. These training activities took various forms, including participation in industry environmental conferences, training on new steel pollution control technologies, and development trend analysis. Moreover, the company enhanced environmental awareness through diverse initiatives such as hosting the "6·5 Environment Day" themed activities, distributing awareness brochures, organizing environmental essay, and recognizing outstanding contributors in environmental protection, further fostering employees' engagement and commitment to environmental initiatives.

Case: Jingtang Co. Environmental Management System Standardization Training

In June 2024, the Energy and Environment Department of Jingtang Co. adopted an innovative approach combining "theoretical learning" + "action learning" and "external knowledge" + "internal knowledge" to carry out a four-day environmental management system capability enhancement and knowledge-sharing event. The event brought together environmental management personnel from 21 relevant departments and associated units, receiving widespread acclaim from participants.

Enhancing Knowledge through Learning, Continuously Promoting the Integration of System Standards with On-Site Environmental Management. In the aspect of "theoretical knowledge" + "external knowledge" enhancement, based on the current environmental management status of Jingtang Co., the event started with discussions on green and low-carbon development and macro-level environmental policies. It provided an in-depth explanation of the PDCA management process and introduced methods for integrating environmental management tools into daily production and business operations. Additionally, it focused on key aspects of on-site environmental management, aligning them with relevant standard elements.

Action Learning, Strengthening Internal Collaboration in Environmental Management.

In the aspect of "action learning" + "internal knowledge" enhancement, Jingtang Co. invited Shu Haigang from the Energy and Environmental Protection Department of the Cold-R Co. to share insights. He began with the Confucian philosophy of Doctrine of the Mean, helping participants recognize that the ISO 14001 Environmental Management System standard is a crucial method for ensuring sustainable development, not only for enterprises but also for the natural environment.



Exhaust Gas Treatment

Shougang Co. is committed to improving the regional environment and continuously enhancing the management of exhaust gas. The company has formulated regulations such as the *Integrated System Operation and Management Measures for Fugitive Emission Control* and the *Clean Transportation Management System*. During the reporting period, a series of exhaust gas treatment projects were implemented, with emission reduction plans tailored to each plant and process. Emissions of particulate matter, sulfur dioxide, and nitrogen oxides remained within the annual plan limits, and pollutant emissions per tonne of steel remained at the industry's leading level. **Both Qiangang Co. and Jingtang Co. successfully passed Hebei Province's new A-level environmental performance evaluation and were once again rated as A-level enterprises in key industries, maintaining their leadership in environmental performance.**

Qiangang Co.

Benchmarked against Hebei Province's new A-level performance standards and conducted a comprehensive gap analysis to address weaknesses, considering the situation of newly built production lines. The clean transportation replacement was fully completed, and by the end of 2024, new energy vehicles accounted for 80.7% of in-plant transportation, while new energy non-road mobile machinery reached 65%. Video surveillance coverage was fully implemented, leveraging existing resources to enhance monitoring locations and expand video storage capacity, ensuring compliance with policy requirements. In December 2024, the Tangshan Municipal Ecology and Environment Bureau organized an A-level evaluation expert group to conduct supplementary on-site assessments of key production lines, including belt-type travelling grate machine and newly built lime kilns. All major production equipment at Qiangang Co. met the new A-level requirements.

Jingtang Co.

Continues to strengthen its leadership as an A-level enterprise, advancing key environmental projects such as the replacement of heavy-truck and non-road mobile machinery with new energy alternatives, the installation of supporting charging stations, and the recovery of waste heat from coke oven riser pipes. By reinforcing environmental performance leadership across organized emissions, uncontrollable emissions, monitoring and surveillance, and clean transportation, Jingtang Co. continues to consolidate the A-level advantage of environmental performance. In 2024, the clean transportation ratio at Jingtang Co. exceeded 92%, and the company fully passed Hebei Province's new A-level environmental performance evaluation, once again being recognized as an A-level enterprise in key industries.

The company continues to advance deep environmental governance, continuously upgrading its exhaust gas treatment capabilities. Qiangang Co. has completed several major pollution control projects, including carbon monoxide treatment at 360 m² Sintering Plant, denitrification upgrading at No. 2 Pelletizing Workshop, deep desulfurization of blast furnace gas at No. 2 Blast Furnace, and desulfurization and denitrification for generator units.



In 2024, the company's total emissions for particulate matter, sulfur dioxide, and nitrogen oxides were 5397.15 tonnes, 2000.92 tonnes, and 4091.70 tonnes, respectively, all within permitted emission limits, remaining at the forefront of the industry.

Indicator	Unit	Permitted Emissions	Actual Emissions
Particulate Matter (PM) Emissions	Tonne	6,752.26	5,397.15
Sulfur Dioxides (SO ₂) Emissions	Tonne	4,845.21	2,000.92
Nitrogen Oxides (NO _x) Emissions	Tonne	9,856.33	4,091.70



No. 2 Pelletizing Denitrification Upgrade Project



Thermal Power and Back-pressure Steam Turbine Desulfurization Facility Addition Project

Case: Enhancing Air Pollution Prevention at Cold-R Co.

In terms of fixed pollution sources, the Cold-R Co. has continued to optimize the industrial furnace exhaust gas emission control model, resulting in an 8.99% reduction in nitrogen oxide emissions. Cold-R Co. has also strengthened dust bag filter inspections and replaced membrane-coated filter bags, leading to a 22.5% reduction in dust emissions. Additionally, the company has established an intelligent environmental protection management platform, enabling real-time monitoring of pollutant concentration and emissions from facilities.

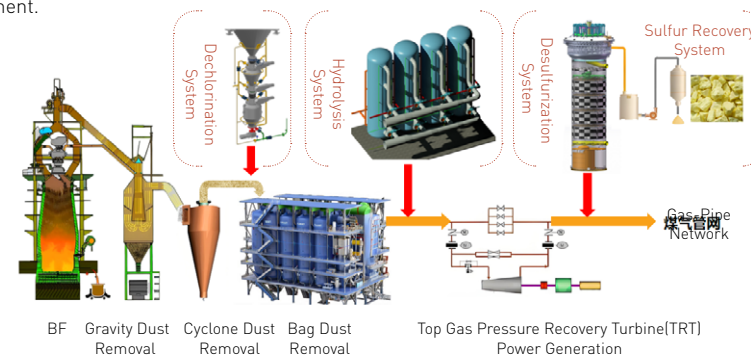
Case: Research and Application of Blast Furnace Gas Fine Desulfurization Technology at Qiangang Co.

In view of the large amount of blast furnace gas volumes, multiple end-users, high treatment complexity, significant production fluctuations, and high concentrations of pollutants such as H₂S, COS, and HCl, along with high solid dust content, Qiangang Co. has conducted extensive research and development across process technologies, equipment, materials, and control systems. As a result, the company has established an advanced controlling pathway of "Dechlorination+Hydrolysis+Wet Oxidation Desulfurization+Elemental Sulfur Extraction." In January, 2024, The world's first-of-its-kind demonstration project was deployed at BF No. 2 of Qiangang Co. Since its launch, it has maintained a 100% operational rate, achieving full gas volume, full working conditions, all time and no waste high-efficiency and stable operation.



This technology marks a global breakthrough in large-scale, all-condition, all-time industrial applications for blast furnace gas treatment. It effectively stabilizes H₂S removal at concentrations below 10 mg/m³ and maintains total sulfur content in blast furnace gas at levels below 15 mg/m³. Additionally, it extracts sulfur pollutants directly from the gas source for resource utilization, solving the long-standing industry challenge of blast furnace gas pipeline corrosion and filling the gap in high-efficiency, environmentally friendly source-control technologies for blast furnace gas.

The technology completely replaces conventional blast furnace gas terminal flue gas desulfurization, reducing capital investment by 42%, lowering operating costs by 21%, cutting land use by 90%, and eliminating secondary waste generation. Additionally, its by-product, solid sulfur with 99% purity, can be repurposed for resource utilization. This breakthrough provides strong technological support for the steel industry's green and sustainable development, setting a new benchmark for environmental innovation and industrial efficiency in blast furnace gas treatment.



Clean Production

Promoting clean production is a key measure for implementing the fundamental national policies of resource conservation and environmental protection. It is also an essential approach to achieving synergistic pollution reduction and carbon emission reduction. Shougang Co. has deeply integrated the clean production concept into the entire production and service process, formulating detailed clean production work plans and establishing a clean production reward and punishment system. Through continuous clean production practices, audits, incentive mechanisms, and strict supervision, the company ensures the orderly advancement of clean production initiatives. Currently, the company's pollutant emissions per tonne of steel, including particulate matter emissions, and other key indicators all better than Level 1 standards in the Clean Production Evaluation Index System, achieving an advanced level of clean production in China steel industry. Both Qiangang Co. and Jingtang Co. have been recognized as "Clean Production and Environmentally Friendly Enterprises" and have successfully passed multiple rounds of clean production audits.

During the reporting period, Qiangang Co. invested RMB 83.59 million to implement a clean production plan. Following its implementation, the company achieved an annual reduction in electricity consumption of 13.946 million kWh and a reduction in CO₂ emissions by 38053.8 tonnes.

Cold-R Co. established a clean production audit task force led by the general manager to conduct a comprehensive review of clean production practices. Issues identified during the review were promptly addressed with continuous improvements. Following an expert evaluation conducted by the Beijing Municipal Ecology and Environment Bureau, the Beijing Municipal Commission of Development and Reform, and the Beijing Municipal Bureau of Economy and Information Technology, the company's pollutant emissions per tonne of steel and particulate matter emissions met the Level 1 restrictive indicator requirements for clean production in the steel rolling industry. Additionally, its comprehensive clean production evaluation index (Y_{gk}) reached 97, attaining internationally leading clean production standards.

13.946 million kWh
reduction in electricity
consumption

38053.8 tonnes
reduction in CO₂ emissions

Wastewater Discharge Management

Shougang Co. has adopted comprehensive wastewater treatment and deep purification technologies, including advanced coking wastewater treatment, zero-discharge technology for cold rolling wastewater, and online monitoring of process wastewater discharge. These measures have enabled the company to maximize water efficiency and enhance wastewater resource utilization.

Qiangang Co.

Has developed a graded, tiered water resource utilization technology and a digital online leakage detection system, optimizing full-process water efficiency for an large-scale integrated steel enterprise. The company's water recycling rate exceeds 98.5%.

Jingtang Co.

Has established a comprehensive wastewater treatment infrastructure, which includes coking phenol-cyanide wastewater treatment systems, continuous casting wastewater treatment systems, and wastewater treatment systems for hot rolling, cold rolling, plate line operations, along with a centralized wastewater treatment station. Process wastewater from steelmaking, hot rolling, cold rolling, and plate production line undergoes initial treatment before being directed to the centralized wastewater treatment station, where it is further purified. The treated water is then blended with surplus desalinated seawater for reuse, achieving zero-discharge through a wastewater-coupling process.

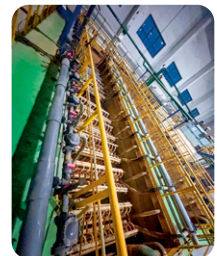
Case: Qiangang Co. Achieves 100% Harmless Reuse of Cold Rolling Wastewater

Qiangang Co. has developed key treatment technologies for complex wastewater management in the steel industry. By applying a highly efficient physicochemical-biochemical-membrane integrated technology, the company has achieved 100% reuse of cold rolling wastewater. Additionally, for desulfurization-denitrification acid-making wastewater, Qiangang Co. has developed a coordinated treatment technology for ammonia, nitrogen, fluoride, and heavy metals, achieving over 90% ammonia-nitrogen removal efficiency, 86% total nitrogen removal efficiency, and 99% fluoride removal efficiency, enabling 100% harmless reuse of acid-making wastewater.



Case: Cold-R Co. Upgrading Wastewater Treatment Plant

Cold-R Co. invested RMB 21.5 million to upgrade its wastewater treatment plant, incorporating advanced equipment and facilities such as air-energy flocculation, vortex air flotation, anoxic tanks, and organic membrane bioreactors. This upgrade significantly improved wastewater treatment efficiency, effectively reducing chemical oxygen demand (COD) from 50 mg/l to approximately 20 mg/l, ammonia nitrogen from 15 mg/l to around 1 mg/l, suspended solids from 50 mg/l to about 8 mg/l, and petroleum content from 5 mg/l to approximately 0.8 mg/l.



Case: Qiangang Co. Selected as a Typical Case for Industrial Wastewater Recycling in 2024

Refined Water System Management

In line with national standards, industry standards, and actual production, Qiangang Co. has developed water quotas for the entire production process, achieving control and evaluation closed-loop management with optimized technical and economic indicators. The company has also developed an energy management information system and established a dynamic information platform for water supply and drainage systems, enabling dynamic regulation and efficient utilization, thereby enhancing the level of refined management.

Dry Dust Removal Technology

In the design of the coking, ironmaking, and steelmaking processes, Qiangang Co. has adopted advanced water-saving technologies. It has developed and applied all-dry dust removal technologies, with blast furnace gas, coke oven gas, and BOF gas all adopting dry dust removal methods, significantly reducing fresh water consumption. Three blast furnaces utilize dry dust removal, achieving notable water and energy conservation. For the steelmaking process, the BOF uses dry dust removal technology, saving significant fresh water per tonne of steel compared to wet dust removal, while also reducing the generation of large amounts of wastewater.

Cold Rolling Wastewater Zero Discharge Technology

To treat the large volumes of acidic/alkaline wastewater, oily wastewater, and waste emulsified liquid wastewater generated during cold rolling production, Qiangang Co. has built a wastewater treatment station. Wastewater containing acids, alkalis, oils, waste emulsified liquids, and waste flattening liquids is treated to meet standards at the wastewater treatment station before being discharged into the company's main wastewater treatment plant.

Cyclic Water System Cascade Usage

Qiangang Co. completed the construction of water supply center, the largest in Asia, provides centralized water supply for steelmaking, rolling, oxygen production, saturated steam power generation, and compressor stations. The pump station covers a small area, with all circulating water systems centrally controlled. According to the different water quality requirements of each system, cascade water usage is achieved, contributing to water savings.



Comprehensive Wastewater Treatment in the Whole Plant

A "rainwater and sewage diversion", drainage system has been adopted, with construction of production wastewater, domestic sewage, and rainwater, ensuring the effective collection of wastewater. Following the principle of graded treatment, facilities for treating production wastewater and domestic sewage have been established. The design treatment capacity for production wastewater is 60000 tonnes/d, while the treatment capacity for domestic wastewater is 3600 tonnes/d.

Deep Treatment and Near-Zero Discharge Technology

Qiangang Co. adopts wastewater treatment+deep treatment+concentrated water reverse osmosis combined water treatment technology, fully recovering treated water from the wastewater treatment plant. The desalinated water produced is used in the company's closed-loop water systems, such as for ironmaking, steelmaking, hot rolling, cold rolling, power generation, and oxygen production, as well as in vapor cooling systems and spray rinsing systems. The concentrated brine is further reduced through reverse osmosis before being used in blast furnace slagging, slag soaking, and sintering raw material mixing processes, achieving near-zero discharge of industrial wastewater.



Solid Waste Management

To standardize the management of solid waste resources at Shougang Co. and its subsidiaries, and to further enhance the comprehensive utilization of solid waste resources, the company has developed the *Solid Secondary Resource Management System* and the *Solid Waste Pollution Prevention and Control Management System* in accordance with the *Solid Waste Pollution Environment Prevention Law of the People's Republic of China* and related laws and regulations. These systems ensure that the disposal of solid waste is in compliance with legal and regulatory requirements, eliminating potential risks and hazards.

The company follows the principles of "reduction, reuse, industry collaboration, and productization" in managing solid waste, focusing on source control, process supervision, end-treatment, and comprehensive utilization. The goal is to achieve "zero solid waste disposal from the factory". During the reporting period, Cold-R Co. became the first company in Beijing to implement comprehensive information management of hazardous waste, while Jingtang Co. was selected as a National-level Typical Case for "Zero Waste Disposal Factory".



Cold-R Co.'s Full-Process Informatization Management of Hazardous Waste

In 2024, the company generated 13.459 million tonnes of solid waste, including 12.999 million tonnes of general solid waste (non-hazardous waste), with a 100% comprehensive utilization rate. Additionally, 0.46 million tonnes of hazardous or harmful waste were produced, with 100% compliance in the disposal of hazardous waste.

Indicator	Unit	2022	2023	2024
Waste Generation	Million tonnes	12.38	13.05	13.46
General Waste Generation	Million tonnes	11.92	12.67	13.00
General Waste Recycled	Million tonnes	11.92	12.67	13.00
Hazardous Waste Generation	Million tonnes	0.46	0.38	0.46
Hazardous Waste Recycled	Million tonnes	0.45	0.38	0.44
Waste recycled	Million tonnes	12.37	13.05	13.44
Comprehensive utilization rate of steel slag	%	100	100	100
Comprehensive utilization rate of dust	%	100	100	100

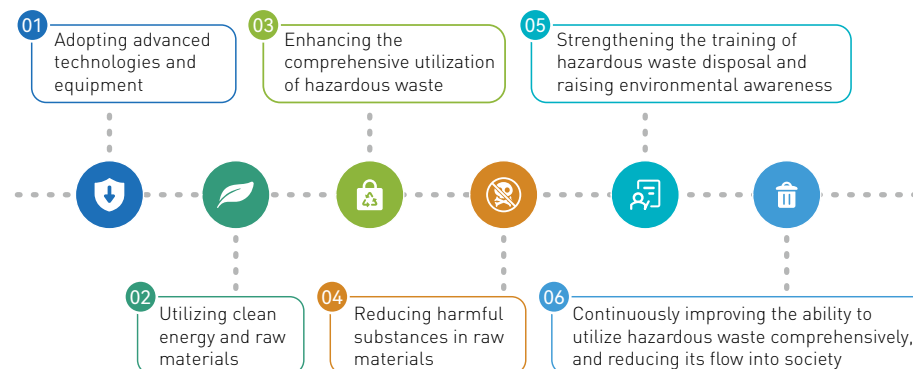
The company has used solid waste to produce high basicity sinter and explored new ways to utilize solid secondary resources. Qiangang Co. is using solid waste to produce high basicity sinter and use it as cooling and slagging agent in converter.

The company has further advanced steel slag micro-powder research to expand its application scope. Qiangang Co. has conducted industrial trials using steel slag micro-powder to replace lime hydrate (>30% substitution rate) in semi-dry desulfurization processes. The results confirm that the desulfurization performance meets production requirements while unlocking new value for steel slag byproducts.

Through these initiatives, the company achieved a 100% comprehensive solid waste utilization rate in 2024, with 90.12% of resources being repurposed internally and 9.88% through external resource utilization. Steel slag and water slag have been fully repurposed, achieving a production reuse rate of 20.49%.

Ensuring proper disposal of hazardous waste. Shougang Co. identifies all solid waste based on the national Catalogue of Hazardous Wastes, Hazardous Waste Identification Methods, and Identification Standards. In accordance with the *Pollution Control Standards for Hazardous Waste Storage* (GB 18597-2023), the company strengthens standardized management of hazardous waste storage to eliminate potential environmental risks and prevent contamination. Currently, all hazardous waste is 100% entrusted to qualified environmental companies for compliant treatment, ensuring proper disposal.

6 Key Measures To Reduce Hazardous Waste Generation



Case: Qiangang Co. Receives Exemption from Hazardous Waste Operating License for Collection and Utilization

Shougang Group's application for the "Waste-Free Factory Group" pilot project received approval from the ecology and environment authorities in both Beijing and Hebei province. As the leading unit of this pilot project, Qiangang Co. actively engaged with the local environmental authorities and obtained an exemption from hazardous waste operating licenses for the collection and utilization of hazardous waste from 16 enterprises under Shougang Group. This exemption allows for the collection and recycling of hazardous waste from Shougang Zhixin, Shougang Environmental Protection, and other subsidiaries, including spent activated carbon, spent activated coke, iron-contaminated materials (such as waste oil drums, paint cans, etc.), cold-rolled sludge, and emulsified liquid residue. It is estimated that by recycling spent activated carbon and iron-contaminated materials (such as waste oil drums, emulsified liquid residues, and waste oil), the company can save tens of millions yuan in external disposal fees each year. In 2024, Qiangang Co. organized the full disposal of 16.3 thousand tonnes of cold-rolled sludge, achieving a substitution benefit of 76.39 million yuan.

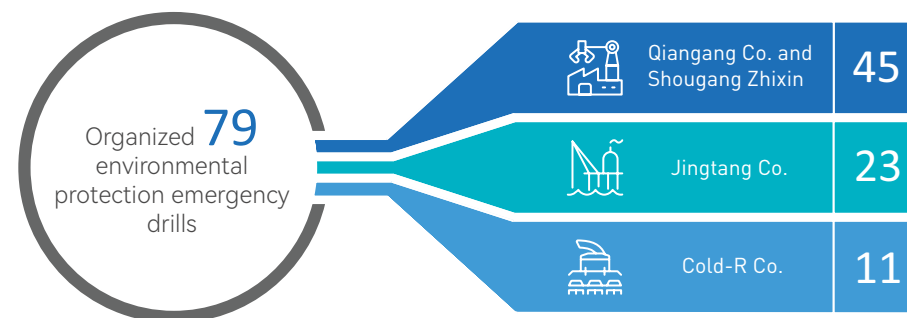
➤ Risks and Opportunities Management

Shougang Co. recognizes environmental risks as one of the major risks impacting its operations. By taking into account industry practices, we conduct comprehensive analyses of environmental risks associated with unexpected environmental incidents, various types of waste, radioactive materials, and water resources. In response, the company has established and continuously improved its environmental emergency response system and formulated measures to address potential environmental issues.

Environmental Risks	Response Measures
Sudden Environmental Events	Establish an emergency response system for unexpected environmental incidents: Develop environmental risk contingency plans and regularly conduct emergency response drills.
Pollution and Harm to the Environment from Exhaust Gas, Wastewater, Waste Slag, Dust, Radioactive Materials, and Noise	Implement a range of environmental pollution prevention measures, and organize and execute multiple pollution control actions in an orderly manner.
Non-Compliance in Waste Disposal Methods	Strictly adhere to relevant laws and regulations, disposing waste legally; Classify waste according to its characteristics and recyclability.
Environmental Pressure from Hazardous Waste during Generation, Collection, Storage, Transportation, and Utilization	Strengthen source control for waste; Standardize the collection and storage of hazardous waste, following all applicable requirements.

Emergency Plans and Drills

Shougang Co. has established and continuously improved its emergency response system for environmental incidents based on the results of environmental risk assessments, strictly adhering to legal and regulatory requirements. The company has developed emergency response plans and procedures for sudden environmental accidents and organizes drills according to an emergency drill schedule. These drills aim to enhance organizational command, rapid response, and emergency handling capabilities during production processes in the event of unexpected environmental incidents. During the reporting period, the company organized 79 environmental protection emergency drills. Qiangang Co. incorporated some projects including belt-type travelling grate machine, newly built quicklime kilns, enhanced train transport capacity, and the recycling of general industrial solid waste into its emergency plans, strengthening the comprehensiveness and specificity of its emergency management.



In June 2024, Qiangang Co. hosted the 2024 radiation safety emergency drill organized by the Tangshan Municipal Ecology and Environment Bureau, with over 30 enterprises and institutions, including steel companies and hospitals, participating. The drill simulated an emergency response process involving the discovery of radioactive materials in waste steel transport vehicles. The entire drill process was closely coordinated and smoothly executed.



2024 Radiation Safety Emergency Drill

Jingtang Co. organizes daily inspections across all processes to identify potential environmental risks related to sudden environmental events, ensuring proactive prevention. Additionally, the company actively conducts emergency drills, completing exercises such as leakage drill of waste oil in the hazardous waste storage facility and wastewater quality anomaly drill at the cold rolling department's public auxiliary wastewater station.



Jingtang Co. Waste Oil in the Hazardous Waste Storage Facility Leakage Drill



Jingtang Co. Cold Rolling Department Public Auxiliary Wastewater Station Water Quality Anomaly Emergency Drill



Cold-R Co. has revised its emergency response plan for sudden environmental accidents, which has been reviewed and approved by experts and the ecology and environment department, ensuring both the scientific validity and regulatory compliance of the plan.



Cold-R Co. Emergency Drill

Case: Shougang Zhixin Conducting Emergency Drill for Liquid Ammonia Leakage

With strong support from the Qian'an Municipal Ecology and Environment Bureau, Shougang Zhixin's ammonia station held an emergency drill for a liquid ammonia leakage. The drill simulated a scenario where a liquid ammonia leakage occurred at the ammonia station, thoroughly testing the company's organizational coordination, emergency response, and on-site handling capabilities. This exercise received high praise from government authorities.



Metrics and Targets

Recognized as an A-level environmental performance enterprise for consecutive years, the company closely follows the strategic steps outlined in the national five-year plan and, based on its own situation, establishes long-term environmental protection goals for the next five years. Each year, the company develops an environmental and management target implementation list to ensure that environmental protection efforts are carried out in an orderly and steady manner. The company adheres to the environmental management system policy of "compliance with regulations, pollution prevention, continuous improvement, and environmental friendliness", and sets environmental management targets such as resource conservation, eliminating environmental pollution incidents, 100% compliance with comprehensive pollutant emissions standards, and 100% synchronization of environmental facilities with primary production equipment. During the reporting period, the company achieved 100% pollutant emission compliance, 100% synchronous operational rate for environmental protection facilities and primary production equipment, 100% compliance in the disposal of hazardous waste, and 100% completion of emergency response plan drill. The rate of environmental accidents and incidents was 0, and emissions of smoke, dust, sulfur dioxide, and nitrogen oxides all met the annual targets. The company's pollutant emissions per tonne of steel are at the industry-leading level.

Indicator	2024 Goals	2024 Results
Pollutant Emission Compliance Rate	100%	100%
Synchronous Operational Rate for Environmental Protection Facilities and Primary Production Equipment	100%	100%
Environmental Accident and Incident Rate	0	0
Hazardous Waste Compliance Disposal Rate	100%	100%
Emergency Response Drill Completion Rate	100%	100%
Compliance Emission of Smoke Dust, Carbon Dioxide, and Nitrogen Oxides	Compliance with: Steel Industry Air Pollutant Ultra-Low Emission Standards: DB13/2169-2018 Coking Chemical Industry Air Pollutant Ultra-Low Emission Standards: DB13/2863-2018	Meeting Emission Standards



Resource Utilization

➤ Governance

Shougang Co. has established a clear and efficient energy management framework, consisting of three management levels: the Green Manufacturing Committee Energy Conservation Management Group, the Energy Department, and the Energy Departments of subsidiaries. The company adopts a “flat, centralized, unified” management model and has developed an energy and environmental management system that is structurally simple, streamlined, efficient, and environmentally clean. The Green Manufacturing Committee Energy Conservation Management Group is responsible for energy management, researching significant energy issues, making decisions, and coordinating solutions to major energy conservation issues. The Energy Department is responsible for establishing and improving energy management systems, policies, and goals, organizing energy management performance monitoring, inspections, and assessments, coordinating subsidiaries to improve energy performance, and supervising the legal implementation of energy-conservation technology modifications and achievement of energy-related targets. The Energy Departments of subsidiaries are responsible for the localized construction of energy management systems and executing energy management and related energy indicators at the subsidiary level.



Green Manufacturing Committee Energy Conservation Management Group

Responsible for energy management, researching significant energy issues, making decisions, and coordinating solutions to major energy conservation issues.

Energy Department

Responsible for establishing and improving energy management systems, policies, and goals, organizing energy management performance monitoring, inspections, and assessments, coordinating subsidiaries to improve energy performance, and supervising the legal implementation of energy-conservation technology modifications and achievement of energy-related targets.

Energy Departments of Subsidiaries

Responsible for the localized construction of energy management systems and executing energy management and related energy indicators at the subsidiary level.

Shougang Co. has established an energy management system in compliance with the *Energy Conservation Law of the People's Republic of China* and other relevant laws and regulations. The company has developed a series of systems, including the *Energy Management System*, *Power*

Operation Management System, *Electricity Supply and Usage Management System*, and *Management System of Circulating Cooling Water System*. These efforts align with the national standard *Energy Management Systems—Requirements with Guidance for Use* (GB/T 23331). The company's energy management system certification coverage has reached 100%.



Certificate Of Management System For Energy

➤ Strategy

Improving energy efficiency is a core initiative for achieving green, low-carbon, and high-quality development in the steel industry. The company is firmly committed to tapping energy efficiency potential, optimizing its energy structure, driving energy-conservation technological innovation, and integrating green production throughout all aspects of production and operations, striving to realize green, low-carbon, and high-quality development.

Actively Applying Energy-Conservation Technologies. Qiangang Co. implemented energy-conservation and carbon-reduction transformation projects for its sintering, hot rolling, and auxiliary systems. These efforts included energy-conservation and carbon-reduction modifications to the exhaust gas system of the existing No.3 360 m³ sintering machine, energy-efficient combustion retrofitting of the hot rolling No. 1 reheating furnace and improvements to the efficiency of laminar circulating cooling water, and energy-conservation modifications to the auxiliary circulating water system, complemented by electrical automation enhancements and instrumentation heat control system upgrades. Upon completion, these projects are expected to save a total of 31550 tonnes of standard coal annually and reduce carbon dioxide emissions by 82030 tonnes per year. Jingtang Co. further enhanced electricity management by identifying 99 energy-conservation measures across management, process, and technology. Key projects included variable frequency retrofitting of secondary dedusting fans in steelmaking and optimizing the startup sequence of main motor fans on the 1580mm hot rolling production line. These measures collectively saved more than 40 million kWh of electricity over the year. Additionally, the compressed air system achieved an energy consumption level 0.006 kWh/m³ lower year-on-year through graded supply and pipeline optimization, which is below the standard for first-level energy efficiency stations.

Extreme Energy Efficiency

Shougang Co. actively promotes the Extreme Energy Efficiency Project, formulating the *Extreme Energy Efficiency Work Promotion Plan* and the *Integrated Energy Cost Reduction and Extreme Energy Efficiency Promotion Plan*. Through these initiatives, the company has made steady progress in systematic energy consumption reduction and improving quality. Qiangang Co. and Jingtang Co. were recognized as "Advanced Enterprise in Organizing and Promoting the Steel Industry Extreme Energy Efficiency Project Three-Year Benchmark Action in 2024". In the fourth quarter, after expert evaluations, reviews, and on-site inspections conducted by the China Iron and Steel Association, Qiangang Co. and Jingtang Co. passed the certification for "Energy Efficiency Benchmark Demonstration Factory for Dual Carbon Best Practice", becoming the first in the steel industry to receive official recognition.



During the energy efficiency cultivation period, Jingtang Co. focused on establishing benchmark energy efficiency demonstration processes and achieving optimal alignment of energy and material flows throughout the entire process. The company actively advanced energy efficiency standards and, based on its own process characteristics, promoted the application of energy-conservation technologies. Jingtang Co. also conducted specialized actions for energy-conservation and consumption reduction in key processes, striving for optimal energy efficiency in operations. During the reporting period, Jingtang Co. completed 12 energy-conservation technical improvement projects, saving 140000 tonnes of standard coal. Energy consumption across all processes continued to decrease, with No. 2 Sintering Line being recognized as the "Champion Furnace" and No. 3 Blast Furnace awarded the title of "Outstanding Furnace".



Qiangang Co. has implemented 31 energy-conservation projects across all processes, including 8 Shougang Co.-level extreme energy efficiency projects. Through the implementation of various management and modification measures, energy consumption in each process has significantly decreased. In the national competition for energy-conservation and consumption reduction among key large-scale steel production equipment, No. 8 Sintering Machine was awarded the "Champion Furnace", No. 3 Blast Furnace received the "Outstanding Furnace", and No. 2 Blast Furnace and No. 4 Converter were recognized as "Pioneering Furnaces".



Some of the company's energy-conservation technological transformation projects

Project	Investment (RMB million)	Energy-conservation (tonnes of standard coal)
Jingtang Co. 100MW Gas Power Generation Unit Project	383	60,797
Jingtang Co. Flue Gas Flow Field Optimization and Waste Heat Recovery Project for No. 2 300MW Unit	43	11,000
Jingtang Co. Energy-Conservation Transformation Project for 1580mm Hot Rolled Coil Production Line in the Hot Rolling Department	46	5,900
Qiangang Co. Blast Furnace Dehumidification Dehumidified Blast Project	23	4,377
Qiangang Co. No. 3 Hot Stove of No. 1 Blast Furnace Renovation Project	77	5,736

Case: Jingtang Co. Recognized as an Outstanding Unit in Energy Conservation and Emission Reduction Improvement and Innovation Activities

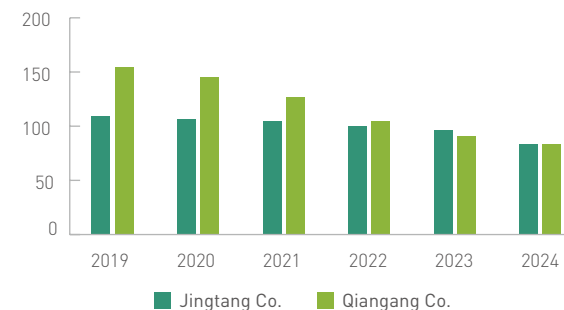
In September 2024, Jingtang Co. was recognized as an Outstanding Unit in energy conservation and emission reduction by the Hebei Provincial Development and Reform Commission, the Hebei Provincial Department of Ecology and Environment, the Hebei Provincial Department of Industry and Information Technology, the Hebei Provincial Energy Conservation Association, and the Hebei Provincial Quality Association. This recognition was part of the Second Annual Energy Conservation and Emission Reduction Improvement and Innovation Activities in 2024. Additionally, 11 of Jingtang Co.'s achievements, including the "Reduction of Hydrogen Consumption per Tonne of Steel in the Cold Rolling Department's 1700mm Bell Annealing Furnace", were awarded the first-class results.



Through the help of the T50 technical list issued by the China Iron and Steel Association, combining with its own practices to implement energy-conservation technologies, Jingtang Co. achieved the application rate of extreme energy efficiency technology over 70%. Jingtang Co. has also explored additional energy-conservation potential by promoting innovations such as large pellet ratios and high-oxygen smelting in the blast furnace process, waste heat recovery retrofits and energy-conservation modifications. Measures such as modification of waste heat utilization of riser in coking process, and upgrade to the vaporization system insulation and dust fan variable frequency systems in the BOF process.

Since 2023, Jingtang Co. has achieved benchmark energy consumption levels across its key processes. No. 1 Sintering Line, No. 2 Sintering Line, and No. 5 Converter were awarded the "Champion Furnace" title in the national competition for energy-conservation and consumption reduction among key large-scale steel production equipment. The sintering process was also honored with the "Energy Efficiency Leader" title by the Ministry of Industry and Information Technology in 2023. In September 2024, Jingtang Co. became one of the first companies to be publicly recognized as a "Energy Efficiency Benchmark Demonstration Factory for Dual Carbon Best Practice" by the China Iron and Steel Association.

Controlling Energy Losses. The company has strengthened collaborative management of the hot metal ladle operations, continuously implemented compact transportation from blast furnace tapping, and improved the hot metal scheduling process, thereby further increasing the turnover rate of hot metal ladles. At the same time, the company optimized online slag-cleaning operations and enhanced the thermal insulation of hot metal ladle covers. In 2024, Qiangang Co. reduced the temperature drop of hot metal by 83.2°C, a year-on-year decrease of 13.3°C, while Jingtang Co. achieved a reduction of the temperature drop of 83.3°C, a year-on-year decrease of 7.2°C.



Continuous Decline in Hot Metal Temperature Drops(°C)

Increasing the Rate of Hot Charging and Hot Delivery. Qiangang Co. implemented measures such as direct loading, balancing steelmaking and rolling capacity, and optimizing scheduling plans, resulting in a hot charging and hot delivery rate of 70.65%, an increase of 2.53 percentage points year-on-year. Jingtang Co. achieved a rate of 61.55%, an increase of 1.75 percentage points year-on-year.



Special Topic

Qiangang Co. Recognized as Energy Efficiency Benchmark Demonstration Enterprise for Dual Carbon Best Practice

Strengthening Management for Full-Process Efficient Coordination

Since the end of 2022, Qiangang Co. has embarked on building an energy efficiency benchmark demonstration base. In 2023, the company established a leadership team led by the general manager, systematically planning and deploying extreme energy efficiency management from organizational structure, task allocation, and process management perspectives. Various functional departments were assigned responsibilities, such as coordinating production, refining metering systems, managing energy-consuming equipment, and supervising the quality inspection of incoming raw materials and fuels. Each production unit was tasked with creating benchmark process plans, advancing energy-conservation initiatives, and ensuring implementation. At the same time, the company maintained a strict focus on improvement through benchmarking, tightly enforcing process control, integrating process energy consumption with energy cost management, and conducting rigorous closed-loop performance evaluations.

Scientific Planning and Steady Development of New Energy-Conservation Technologies

Based on the "Three Lists, Two Standards, One System" developed by the China Iron and Steel Association and the outcomes of several specialized technical matchmaking meetings, Qiangang Co. systematically identified shortfalls and formulated a clear list of applicable capabilities and technologies. Qiangang Co. then developed extreme energy efficiency advancement plans for each process step.

During the cultivation period, 31 energy-conservation projects were launched, involving a total investment of 459 million yuan. These initiatives reduced comprehensive energy consumption by 8.7 kgce/tonne of steel. In the blast furnace process, key efforts included developing and applying low-carbon, high-efficiency hearth casting repairs, dehumidification blast, hot stove modifications, and high-temperature, high-oxygen coal injection technologies. These efforts reduced process energy consumption by 3.1 kgce/tonne of iron annually. In the BOF process, Qiangang Co. focused on increasing converter gas recovery, reducing gas and steam consumption, and lowering electricity usage. Specific projects included oxygen-enriched baking, efficient secondary blowing, reducing double-slag ratios to enhance gas recovery, optimizing automated steelmaking models, and adding regenerative heat exchangers. These measures reduced process energy consumption by 1.49 kgce/tonne of steel. The No. 3 reheating furnace of No. 1 hot rolling mill underwent a high-quality energy-conservation combustion technology upgrade. By adopting oxygen-enriched combustion techniques, optimizing the furnace roof structure in the preheating section, expanding combustion space with additional partitions, and applying new sub-nano composite insulation materials, the reheat furnace capacity was increased by 10%–15%, and fuel consumption was reduced by 5%.

Strengthening energy consumption management at process connection points has been a key focus. In the connection between ironmaking and steelmaking, temperature loss in torpedo ladles has been tightly controlled, with temperature drops reduced to 79.8° C. In the sintering process, Qiangang Co. has explored the application of carbon monoxide catalytic combustion technology to reduce fuel consumption and pollutant emissions. These efforts have lowered blast furnace gas consumption by approximately 15000 m³/h.

The company has also implemented heating upgrades for two 50 MW Combined-Cycle Gas and Steam Turbine Power Plant, optimizing the overall gas balance. During the heating season, under the same

gas conditions, these modifications save 4056 tonnes of coal equivalent (tce) annually. Additionally, waste heat from slag washing wastewater and circulating water has been used to generate cooling for critical processes such as oxygen production, steelmaking, and rolling, overcoming the challenge of summer cooling and reducing the need for fresh water consumption.

Qiangang Co. has consistently driven New Quality Productive Forces through technological innovation. Since 2022, in collaboration with multiple research institutes and universities, Qiangang Co. has undertaken eight energy system technology projects. These include research on full-process energy substitution based on energy quality matching, comprehensive analysis of full-process energy balance and waste heat resource utilization, the development of a big data group control model for distributed air compressor stations, and research on low-temperature waste heat utilization for sludge drying. Through these innovations, Qiangang Co. is promoting Shougang's green, low-carbon transformation to new heights.



Striding Towards Greener Pathways, and Exploring New Approaches to Green and Low-Carbon Development

Qiangang Co. practices the principle that "green mountains and clear waters are as valuable as mountains of gold and silver", and consistently innovates and applies low-carbon smelting and end-to-end low-carbon processing technologies. These efforts serve as the steel industry's primary path toward high efficiency and carbon reduction. Qiangang Co. is actively advancing extreme carbon reduction for integrated iron and steel mill and establishing dedicated low-carbon product lines. Notably, we have developed a combined technology of sintering flue gas recirculation, ultra-thick bed layers, and steam spraying, reducing pollutant emissions by over 25% and CO₂ emissions by more than 9%. By constructing a new pellet production line with a belt-type travelling grate machine, the proportion of blast furnace pellets increased from 28% to 50%, cutting CO₂ emissions by over 60 kg per tonne of hot metal. Further efforts include improving coke quality, utilizing composite injection of pulverized materials, reducing coke consumption, and fully recycling carbon-containing solid waste. Qiangang Co. has steadily increased the proportion of scrap steel used in steelmaking and implemented regenerative burner retrofits for reheating furnaces, boosting thermal efficiency from 50% to 68%. This has resulted in an annual savings of 96 million Nm³ of gas and a reduction of CO₂ emissions by 76800 tonnes.

The pursuit of extreme energy efficiency has no end point. Qiangang Co. will continue to accelerate process innovation and green transformation for energy conservation and carbon reduction. By driving cutting-edge technological breakthroughs and deepening its commitment to innovation, the company aims to set an industry benchmark, serving as a role model and contributing Shougang's strength to advancing green, low-carbon, and high-quality development in the steel industry.

Utilization of Waste Heat and Energy. The company continues to strengthen the recovery of waste heat and energy from blast furnace gas and converter gas, achieving “total recovery and efficient utilization” of gas resources and improving the utilization level of secondary energy. Qiangang Co. implemented a gas system optimization project, introducing a mixed gas supply mode (coke oven gas+converter gas) for the 1580 mm hot rolling strip production line’s two reheating furnaces. This approach reduced coke oven gas consumption, increased power generation from the 150 MW combined-cycle gas and steam turbine power plant, and lowered natural gas usage. Jingtang Co. operates two 300 MW coal-gas co-firing generator sets and one 100 MW ultra-high temperature subcritical gas generator set. Supported by advanced concepts and technologies such as combined-cycle gas and steam turbine power plant, optimized design of large-scale monolithic thermal desalination units, and integrated water-electric symbiosis technology in generator sets, Jingtang Co. has established a highly efficient “fuel-heat-electricity-water-salt” five-effect integrated recycling system. This system improved the overall thermal efficiency from 30% to 81.5%.

During the reporting period, the company generated a total of 7.611 billion kWh of secondary energy electricity. Qiangang Co. adjusted converter gas consumption according to the steelmaking production rhythm, ensuring zero venting of converter gas and completing a total annual recovery of 119.04 m³/t, exceeding the planned target by 0.54 m³/t. Jingtang Co. achieved a converter gas recovery rate of 122 m³/t, with generator sets blending up to 40000 m³/h of converter gas, reaching a ratio of 25%.



Jingtang Co. “Five-Effect Integrated” Efficient Cascade Recycling

Case: Jingtang Co. Achieves 25% Converter Gas Mixing Ratio in Power Generation Units

Jingtang Co. pioneered the implementation of a variable flow system for converter gas, blending it at a high ratio with blast furnace gas for self-controlled combustion in power generation. This innovation enhances the flexibility of gas usage in the units, addressing the challenges of balancing intermittent flow variations and fluctuations in converter gas. The system increases the recovery of converter gas while reducing energy consumption in the converter process. In 2024, the converter gas recovery reached 122 m³ per tonne of steel, and the maximum mixed burning amount of converter gas in the power generation unit reached 40000 m³/h, achieving a mixing ratio of 25%.



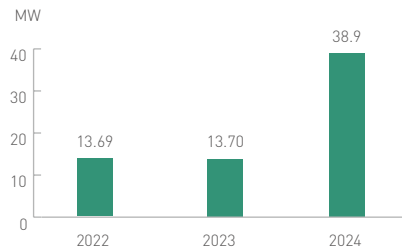
Case: Qiangang Co. Retrofitting of Gas Waste Heat Power Generation TRT Unit

Qiangang Co.'s No. 3 TRT unit, which is a gas pressure recovery turbine power generation facility for No. 3 Blast Furnace, was commissioned in 2010. In 2024, Qiangang Co.' organized an efficiency improvement modification for the unit. The project was implemented using an Energy Management Contract (EMC) model, and the modification was completed in April, 2024. After the modification, the TRT unit's daily power generation increased by approximately 33200 kWh (calculated under the same operating conditions), resulting in a 7.5% increase in power generation. This improvement led to a reduction in energy consumption in No. 3 Blast Furnace by approximately 0.39 kgce per tonne of hot metal.

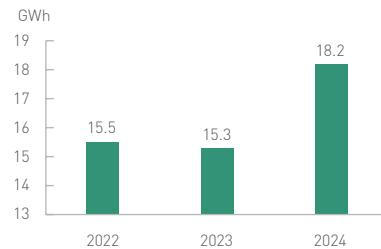


Clean Energy

The company has been actively promoting the "dual-carbon" goals by steadily increasing the proportion of renewable energy applications. The total installed solar photovoltaic capacity reached 38.9 MW, including 5.399 MW at Qiangang Co., 10.3 MW at the Cold-R Co. and 23.195 MW at Jingtang Co. During the reporting period, the 23.195 MW Phase I solar photovoltaic project at Jingtang Co. and the 1.96 MW Phase II solar photovoltaic project at the Cold-R Co. were successfully connected to the grid, providing strong support for the company's green energy supply. In 2024, solar photovoltaic power generation increased to 18.2 million kWh, up 18.95% year-on-year, and the proportion of clean energy consumption increased to 0.99%.



Solar Photovoltaic Installed Capacity
Increases Annually



Solar Photovoltaic Power Generation
Increases Annually

Case: Jingtang Co. First Phase of Solar Photovoltaic Power Generation Project Goes into Operation

In November, 2024, Jingtang Co. held the commissioning and grid connection ceremony for the first phase of its solar photovoltaic power generation project. The project has an installed capacity of 23.195 MW, capable of generating approximately 24 million kWh of green electricity annually. This will result in savings of 7300 tonnes of standard coal and a reduction of 19500 tonnes of CO₂ emissions.



Continuously Increasing the Proportion of Green Electricity Usage. The company began purchasing green electricity since 2022, with the volume increasing by 39.74% year-on-year in 2024. Moving forward, we will continue to increase both the volume of green power in our energy mix.

Energy-Conservation Publicity

The company actively organizes energy-conservation publicity activities during National Energy Conservation Week and World Water Day. Through various forms such as special lectures, knowledge dissemination, and online quizzes with prizes, the company promotes energy-conservation concepts and knowledge. These efforts aim to guide all employees in practicing energy-conservation actions such as water and electricity conservation, continuously enhancing their energy-conservation awareness.



Qiangang Co. Energy Conservation
Publicity Campaign

Case: Jingtang Co. Holding "Green Transformation, Energy Conservation Battle" Publicity Campaign

In May, 2024, Jingtang Co. organized an energy conservation publicity campaign themed "Green Transformation, Energy Conservation Battle" in collaboration with the Tangshan Caofeidian District Development and Reform Bureau and the Caofeidian Branch of the Tangshan Ecology and Environment Bureau. The campaign focused on promoting knowledge and policies related to carbon peak and carbon neutrality, energy conservation and carbon reduction, and other key concepts. Various methods were adopted to actively promote green, energy-conservation, and low-carbon new technologies, as well as to spread energy-conservation standards and labels. The campaign also encouraged employees and their families to engage in green and low-carbon practices such as reducing food waste, saving water and saving electricity, promoting green consumption, and adopting green travel, which fosters green and low-carbon production and lifestyle practices.



Reducing Packaging Material Consumption

Shougang Co. has developed the *Packaging Quality and Material Management Regulations* and the *Steel Product Quality Marking Management Regulations* to address the needs of packaging quality and material management. Based on these systems, each base has established additional guidelines, including the *On-Site Management Measures for Process Materials and Auxiliary Packaging Materials*, the *Marking and Traceability Management Measures*, the *Procurement Standards for Auxiliary Packaging Materials*, and the *Product Labeling Usage Standards*.

The company advocates for green packaging, promoting eco-friendly, reduced, and recyclable packaging practices. Green and environmentally friendly materials are prioritized for product packaging, with strict controls on prohibited and restricted substances. Materials such as anti-rust paper, industrial film, paper corner protectors, and plastic sheets all meet RoHS and other standards, and undergo regular spot-check testing. To achieve both environmental friendliness and cost reduction, the company collaborates with customers and other stakeholders to implement various initiatives: On one hand, packaging methods and material specifications are categorized and optimized based on various factors such as transportation methods, distances, and product grades. While ensuring product protection, the following approaches are adopted to reduce the consumption of packaging materials at the source: reducing material width and thickness; simplifying or eliminating packaging for short-distance transport; and saving auxiliary materials by replacing them with more environmentally friendly alternatives; and improving packaging material utilization rates. On the other hand, the company strengthens quality control to minimize the need for unpacking, and repackaging due to surface damage or defects. Furthermore, we continue to increase the range and volume of packaging materials recovered within its processing and distribution network, improving reuse rates.

Water Resources

Shougang Co., in accordance with the *Water Law of the People's Republic of China*, the *Water Pollution Prevention and Control Law of the People's Republic of China*, and other relevant laws and regulations, has developed the *Water Source Protection System*, the *Water Supply and Consumption Management Measures*, and the *Cooling Water System Management Regulations* based on the company's specific circumstances. These measures standardize the management of water sources, ensuring the safe supply of water for both production and daily living in the company and surrounding areas. The company is committed to the rational development, efficient utilization, comprehensive management, and scientific oversight of water resources. As a result, we have won many awards such as "Water-Saving Enterprise in Tangshan City", "Hebei Provincial Water-Saving Model Enterprise", and "National Water Efficiency Leading Enterprise".

During the reporting period, the company formulated the "Water Consumption Reduction and Efficiency Improvement" work plan, guided by the principle of resource conservation and aimed at reducing corporate water costs. The plan comprehensively implements the requirements for planned water usage, focusing on improving water resource utilization, strengthening water conservation management, increasing the utilization rate of unconventional water resources, and establishing a long-term water-saving management mechanism. Qiangang Co. 's "Electrochemical Scale Removal

Technology for Increasing Industrial Circulating Water Concentration Ratio" was selected as a typical case for industrial wastewater recycling in 2024. Jingtang Co. was once again recognized as "Water Efficiency Leading Enterprise" by the Ministry of Industry and Information Technology. The Cold-R Co. was awarded the title of "Water-Saving Benchmark Enterprise" in Beijing. In 2024, the company's total water consumption reached 4.81201 billion m³.

Indicator	Unit	2024
Annual Water Consumption	million m ³	4,812.01
Surface Water Consumption	million m ³	13.91
Groundwater Consumption	million m ³	27.01
Desalinated Seawater Consumption	million m ³	24.01
Recycled Rainwater Consumption	million m ³	0
Reclaimed Water Consumption	million m ³	6.92
Tap Water Consumption	million m ³	0
Recycled Water Consumption	million m ³	4,754.01
Water Recycled rate	%	98.79

Qiangang Co. has completed 11 water-saving projects by implementing various measures such as converting the water supply for the combined-cycle gas and steam turbine power plant's electric dust removal from production water to recycled water and wastewater, introducing recycled water into the integrated low- and medium-pressure clean water circulation system to replace industrial fresh water, and increasing the amount of recycled water to reduce the use of industrial water at the No. 3 desalination station. These efforts have successfully reduced the total industrial water consumption across all processes. Additionally, the company developed and applied electrochemical descaling technology, which improved the concentration ratio of the cooling water from 2.5 to 4.0-5.0, reducing industrial water use by 20%-25%.

Jingtang Co. continues to enhance its water usage efficiency through the refined management of both "quantity and quality" in the water system. Jingtang Co. has significantly improved water efficiency by implementing cascaded water use and wastewater reuse. In the cold rolling, hot rolling, and plate processes, the concentration ratio of the clean circulating water has continuously increased, stabilizing above 3 times. Furthermore, Jingtang Co. has carried out extensive work on seawater leakage control, resulting in reductions of 223 m³/d in production water and 822 m³/d in desalinated water.

Case: Cold-R Co. Awarded the Title of "Water-Saving Benchmark Enterprise" in Beijing

The Beijing Water Conservation Office, Beijing Water Saving and Usage Management Affairs Center, and the Shunyi District Water Affairs Bureau, along with other professional departments, evaluated Cold-R Co. based on several dimensions, including water-saving management systems, the implementation of water-saving measures at various production stages, and the water metering and statistical management system. As a result, Cold-R Co. was awarded the title of "Water-Saving Benchmark Enterprise" in Beijing.





Seawater Desalination in Jingtang Co.

➤ Risks and Opportunities Management

In its production and operations, the company consumes various energy resources such as water, electricity, coal, and gas, which indirectly impact the environment. The diffuse of blast furnace gas contributes to environmental pollution. In response to energy-related risks, the company actively addresses these challenges by strengthening energy measurement, analysis, and management. We set annual energy-conservation goals and implementation plans, with a focus on enhancing supervision and performance evaluation. Additionally, the company applies energy-conservation technologies to carry out energy-conservation modifications, increasing the recovery and utilization rate of waste heat resources, such as blast furnace gas. According to national requirements, the company is gradually upgrading and iterating its energy-consuming equipment.

Risks	Response Measures
Pollution Caused by Blast Furnace Gas Emission	Strengthen energy measurement, analysis, and management, set annual energy-conservation goals and implementation plans, and enhance supervision and performance evaluation. Apply energy-conservation technologies for retrofitting and improvement, aiming to increase gas utilization rate.
High Energy Consumption of Some Energy-Consuming Equipment	Gradually upgrade and iterate energy-consuming equipment in accordance with national regulations and requirements.

➤ Metrics and Targets

Shougang Co. has set energy-conservation and low-carbon development as the main focus of its ecological civilization efforts, aiming to improve energy utilization rate and reduce energy consumption. The company has established annual and medium-term targets.

Short-Term Goal: The company's comprehensive energy consumption per tonne of steel in 2024 decreased by 3 kgce/t year-on-year, meeting the annual energy-conservation target.

Medium-term Goal: In 2021, the company set a target to reduce comprehensive energy consumption per tonne of steel by 2% by 2025 compared to 2020 levels, reduce fresh water consumption per tonne of steel by 1% by 2025 compared to 2020 levels, and achieve a green electricity proportion of 5% or more of total electricity consumption. As of the end of the reporting period, the company had already surpassed its medium-term goals: Comprehensive energy consumption per tonne of steel was reduced by 5.51% compared to 2020. Fresh water consumption per tonne of steel was reduced by 4.08% compared to 2020. The proportion of green electricity reached 8.05% of total electricity consumption. All targets were achieved ahead of schedule.

Indicator	Targets by the End of 2025	Target Completion in 2024
Comprehensive Energy Consumption per Tonne of Steel	Reduce by 2% compared to 2020	Reduced by 5.51% compared to 2020
Proportion of Green Electricity	Achieve over 5% of total electricity consumption	Reached 8.05% of total electricity consumption
Fresh Water Consumption per Tonne of Steel	Reduce by 1% compared to 2020	Reduced by 4.08% compared to 2020



Special Topic

Jingtang Co. Recognized Again as "Water Efficiency Leading Enterprise" by the Ministry of Industry and Information Technology

Jingtang Co., integrates the principles of water conservation and emission reduction into the entire design and production management of its water systems. Following the concepts of circular economy and clean production, Jingtang Co. has enhanced its process and technology levels, strengthened water conservation and wastewater resource utilization, and achieved water reduction and scientific management. Additionally, the company has improved the depth of wastewater treatment and successfully implemented zero wastewater discharge. In 2024, Jingtang Co. was once again recognized as a "Water Efficiency Leading Enterprise" by the Ministry of Industry and Information Technology.



"Water-Electric Symbiosis" and "Thermal-Membrane Coupling" Seawater Desalination Integrated Technology. Jingtang Co. is the first large coastal steel enterprise in China to establish a seawater desalination project. The Phase I desalination project consists of four seawater desalination units using Low-Temperature Multi-Effect Distillation (LT-MED) technology, utilizing surplus blast furnace gas and other waste heat resources to achieve a production capacity of 50000 tonnes/d. To further reduce energy consumption in seawater desalination, Jingtang Co. developed "Water-Electric Symbiosis" and "Thermal-Membrane Coupling" technologies, constructing and commissioning a desalination facility with a daily capacity of 95000 tonnes. This created a low-cost Shougang seawater desalination model, conserving conventional water resources while serving as a demonstration for the large-scale adoption of seawater desalination in coastal steel and other industries. The company has also pioneered the world's first internationally advanced "fuel-heat-electricity-water-salt" five-effect integrated high-efficiency recycling system, establishing a new model for high-efficiency energy conservation and cascading utilization in metallurgy.

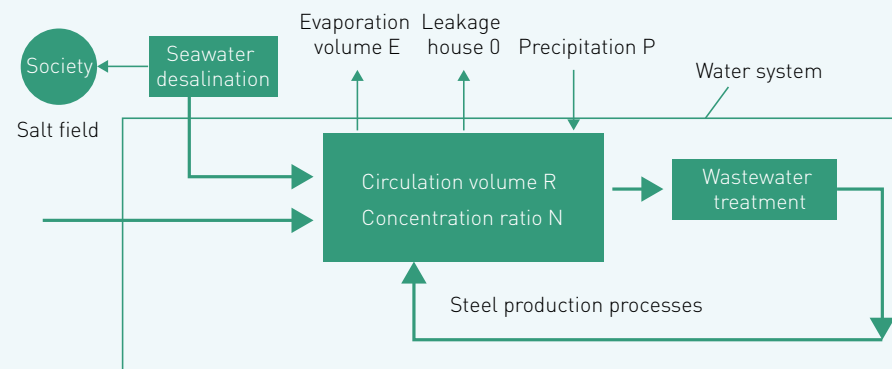
Advanced Treatment of Coking Wastewater. Coking phenol-cyanide wastewater is treated using a combined electrochemical and membrane technology, with a treatment capacity of 200 m³/h and a water recovery rate of 70%. This treatment process effectively degrades organic pollutants, reducing concentrations of Chemical Oxygen Demand (COD), ammonia nitrogen, and other contaminants. The treated water is reused in the production system, while

the concentrated brine is utilized in sintering raw material mixing, improving water resource utilization efficiency and achieving zero discharge of coking process wastewater.

Recycling of Cold Rolling Wastewater. For the first time in China, Jingtang Co. has applied a dual-membrane process ("ultrafiltration+reverse osmosis") to treat high-salinity acid-containing wastewater. Treated oil-containing and alkaline wastewater is combined with hot rolling and cold rolling circulating wastewater and further processed in the No.1 wastewater treatment plant. The resulting water is blended with demineralized water to produce recycled water, significantly reducing demineralized water consumption and improving its utilization rate.

"Coupled" Zero Discharge of Comprehensive Plant Wastewater. Jingtang Co. has adopted a "Rainwater and Wastewater Diversion" drainage system, constructing separate networks for industrial wastewater, domestic sewage, and rainwater drainage to ensure effective wastewater collection. Following a segmented treatment approach, separate facilities have been established for processing industrial and domestic wastewater. After being treated to meet standards, all wastewater is fully reused as supplementary fresh water for plant production.

Jingtang Co leverages its coastal advantage by employing seawater desalination to secure high-quality make-up water. The desalinated water plays a role in diluting and blending the system's salt balance, thereby achieving "zero discharge" of industrial wastewater.



Coupled "Zero Discharge" Diagram

Circular Economy

Shougang Co. actively practices the concept of a circular economy, promoting the efficient recycling of scrap steel and solid waste throughout the entire product lifecycle. The company has established a new development model that integrates internal circulation of enterprises, regional industrial collaboration, and urban-enterprise synergy.

➤ Scrap Recycling

The company ensures the high-quality, stable, and efficient utilization of scrap steel and solid waste resources. Taking a full-life cycle perspective, Shougang Co. collaborates with downstream customers such as Geely Group, Volvo, and Haier to establish a circular economy and closed-loop recycling value system for automotive steel. This partnership optimizes the entire steel production, usage, and recycling process, ensuring efficient resource utilization and circular reuse while promoting harmonious, integrated, and low-carbon development across the supply chain. During the reporting period, the company achieved a 100% recovery rate of self-generated scrap steel, with an annual recovery of 0.96 million tonnes of scrap steel and procurement of 2.81 million tonnes of externally sourced scrap steel.

Case: Shougang Co. Signing Memorandum of Cooperation with Geely Group on Automotive Steel Circular Economy and Closed-Loop Recycling Value System

In May 2024, Shougang Co. and Geely Group officially signed the "Memorandum of Cooperation on Automotive Steel Circular Economy and Closed-Loop Recycling Value System". The two parties will collaborate to optimize the entire chain of automotive steel production, usage, and recycling, aiming to achieve efficient utilization, circular reuse, and maximization of resource value for automotive steel. At the same time, they will enhance the closed-loop recycling value system for automotive scrap steel, connecting the physical chain of closed-loop recycling of automotive scrap steel to enable traceability of information throughout the entire process.



Case: Shougang Co. Collaborating with Volvo and Zhejiang Yiyun to Build a Closed-Loop Steel Recycling System

In July 2024, Shougang Co., Volvo, and Zhejiang Yiyun Recycling Resources Co., Ltd. held a signing ceremony for a three-party cooperation agreement to build a closed-loop steel recycling system. The three parties are working together to advance the industry-leading 100% value retention and closed-loop recycling system for automotive steel, aiming to explore more efficient resource utilization methods. This collaboration seeks to establish a seamless physical recycling chain for automotive scrap steel and utilize digital technologies to ensure traceability throughout the entire process, optimizing the entire automotive steel production, usage, and recycling chain. The goal is to achieve efficient utilization, recycling, and the maximization of resource value in steel.



➤ Solid Waste Recycling

The company adheres to the solid waste management concept of "disposal, value enhancement, and leadership", promoting waste minimization and resource utilization while leveraging advanced technologies to accelerate solid waste recycling. In 2024, the company's solid waste recycled and utilized rate has reached 99.86%. Qiangang Co., in collaboration with Jinyu Group, University of Science and Technology Beijing, and the Qian'an Municipal Government, has launched a solid waste resource utilization project that transforms secondary solid resources generated in steel manufacturing - such as converter slag, blast furnace slag, desulfurization dust, and refining slag - into high-value green building materials. Jingtang Co. has successfully implemented multiple solid waste resource utilization projects, including granulated slag fine grinding, large-scale road base material production, steel slag brick manufacturing, fly ash fine grinding, and zinc resource recycling. These initiatives have enabled the efficient and high-value utilization of solid waste, Jingtang Co. was selected as a National-level Typical Case for "Zero Waste Disposal Factory".

Special Topic

Jingtang Co. Selected as a Typical Case for "Zero Waste Disposal Factory" in the Steel Industry

Jingtang Co. has deeply practiced the "Zero Waste Disposal Factory" concept and, in accordance with the principles of "compliance with laws, full disposal, and maximizing benefits", has established a solid waste hierarchical utilization system, achieving full disposal of solid waste from steel production. Jingtang Co. has built a new pattern for solid waste environmental pollution prevention and control, and has been selected as one of the national "Zero Waste Disposal Factory" typical cases, being one of the two steel companies in China to pass the evaluation, and the only steel company in the Beijing-Tianjin-Hebei region.

Starting from source reduction, Jingtang Co. has promoted the application of industrial solid waste source control technologies

By adhering to the green and low-carbon development direction, Jingtang Co. has emphasized technology leadership and implemented high-pellet ratio processes, achieving a pellet ratio of over 55%, reducing blast furnace slag by 68 kg/t, and reducing dust and particulate matter emissions by 20%. These efforts have actively reduced the source of industrial solid waste, resulting in significant industry-leading results.

Jingtang Co. has strengthened process control and explored the potential for solid waste disposal in internal processes such as sintering and blast furnaces

In the sintering process, the proportion of solid waste added reached 12%, and over 1 million tonnes of solid waste are disposed annually. Of these, iron-containing and calcium-containing solid wastes are 100% disposed. Carbon-containing solid waste (such as coke-produced carbon-containing waste like coal ash and dust) is 100% recycled in blast furnace injection and sintering raw material mixture.

Jingtang Co. has established a new resource perspective for circular economy and developed a new co-production model

Jingtang Co. has actively set up a research, development, and production-integrated advanced solid waste management system, significantly improving product added value. The company has successfully completed multiple projects, including the steel slag hot sealing, all-solid waste-based cementitious materials, fine grinding of slag, and the zinc resource recycling production line, creating a new multi-industry co-production model and achieving leading regional circular development.

Steel Slag Hot Sealing Project

The company has built a "roller press crushing+pressurized heat sealing" steel slag treatment line, which offers advantages such as excellent environmental performance, high automation, compact process, short treatment time, and complete slag-iron separation, achieving high efficiency. The treated steel slag tailings, with a particle size of less than 10 mm, are 90% of the total, with metal iron and free calcium oxide content below 2%. The slag is stable and is used to prepare road base materials and all-solid waste cementitious materials, expanding applications in the road and building materials markets.

All-Solid Waste Cementitious Materials Project

Jingtang Co. has developed new green building materials with cementitious properties using blast furnace water slag, hot sealing steel slag, and desulfurization gypsum. These materials can replace conventional ordinary Portland cement, achieving a reduction of 690-849 kg of CO₂ per tonne. This project has been successfully included in the 2023 Beijing Innovation Green Technology Directory and has been applied in

the Shougang Park venue flooring for the China International Fair for Trade in Services, as well as roads within Jingtang Co. and the Tangshan University playground. In the context of "dual carbon" goals, these materials have a broad market prospect.

Fine Grinding of Slag Project

In line with the three blast furnaces at Jingtang Co., 6 production lines for fine grinding of water slag with an annual output of 600000 tonnes have been built, making the company capable of producing 3.6 million tonnes of slag powder annually. The slag is processed through a vertical mill system, followed by air-selection for products that meet the required particle size. The resulting products are widely used in cement and construction materials and are applied in several major national engineering projects.

Zinc-containing Waste Disposal Project

Different types of zinc-containing dust and binders are mixed, pressed into balls, dried, and then finally entered the rotary hearth furnace, where high temperatures and carbon in the pellets trigger reduction reactions, reducing most of the iron oxide to metallic iron and zinc oxide to zinc. This process recycles high-value iron and zinc products. The rotary heart furnace treats 250000 tonnes of zinc-containing dust annually, with a metallization rate of over 70%, achieving the resourceful transformation of solid waste while recycling steel industry waste.

Green is the Foundation of High-Quality Development. Jingtang Co. will continue to actively integrate into regional circular economy, promoting the high-efficiency utilization and upgrading of metallurgical solid waste, and further increasing its standing and positioning. The company is committed to firmly establishing the "disposal, value-added, and leadership" philosophy for solid waste management, fulfilling the social responsibility of large state-owned enterprises, and showcasing the responsibility of state-owned enterprises. Jingtang Co. aims to lead the steel industry in the construction of "Zero-Waste Factory".



Biodiversity Protection

Shougang Co. fully understands the importance of biodiversity to the company and strictly complies with relevant laws and regulations. The company continually focuses on the harmonious development of the factory environment and the surrounding ecological environment. During the project design phase, biodiversity protection and land use assessments are conducted in accordance with relevant requirements. During the project operation phase, the company continues to monitor the surrounding ecological environment, actively engages in biodiversity conservation efforts, minimizes the impact of production operations on the ecological environment, avoids disturbing wildlife habitats, and prevents soil erosion and deforestation.

The company places great emphasis on the protection of biodiversity, including plant and animal species within its premises. We attach high importance to greening initiatives, diligently advancing the maintenance of green spaces. Suitable plant species are selected based on soil and climate conditions, with a focus on plant diversity. At the same time, efforts are intensified to protect the wildlife inhabiting the factory area. By the end of 2024, Qiangang Co.'s green space covered approximately 1.2091 million m², featuring 8 key landscapes, over 70 species of trees with more than 30000 individual trees, and over 110 species of flowering shrubs totaling over 1.52 million plants. The greening rate reached 35.83%, the green coverage rate reached 45.67%, and the achievable greening rate reached 100%. This has created a green natural landscape characterized by "flowers in three seasons, evergreen all year round", "forests within the factory, and the factory within forests", earning it the title of the fifth batch of national green factories. Jingtang Co.'s greening area exceeded 6 million m², with a greening rate of 38%, green coverage rate of 42%, and achievable greening rate of 100%, achieving full green coverage. Jingtang Co. has been honored with titles such as national "Green Factory", "Hebei Province Garden-style Advanced Unit", "National Greening Model Unit", and "National Metallurgical Greening Advanced Unit". Cold-R Co.'s green space covers 327000 m², with over 30

species of trees totaling more than 5000 individual trees and over 70 species of flowering shrubs totaling more than 36000 plants. The greening rate reached 44.52%, green coverage rate reached 47.8%, and achievable greening rate reached 100%, creating a unique "scenery along every path" feature. Cold-R Co. also emphasizes the protection of wildlife and has been recognized as an "Outstanding Supporter of Nature Conservation". The factory areas are now home to a variety of animals, including magpies, sparrows, pheasants, hares, white wagtails, weasels, and kestrels.



Qiangang Co. Plant Area



Jingtang Co. Plant Area

Case: Jingtang Co. Initiating Tree-Planting Activities

In April, 2024, Jingtang Co. organized a tree-planting activity in the area east of Jing'er Road, north of the No. 2 Cold Rolling Plant, and on both sides of Wei'si Road. A total of over 1300 large trees, including Chinese Scholar Trees (*Sophora japonica*), Ash Trees (*Fraxinus*), and *Euonymus Maackii*, were planted. This initiative has added approximately 48000 m² of green space.

Currently, Jingtang Co. has cultivated over 227000 large-size arbor trees encompassing 32 species, including Plane Trees, Ash Trees, Chinese Scholar Trees, Goldenrain Trees, Silk Trees, Japanese Black Pines, and Deodar Cedars. Additionally, more than 148000 individual shrubs such as Crabapple Trees, Peach Trees, Magnolias, and Cherry Blossoms have been planted. The use of clustered shrubs as accents, combined with extensive lawn greening, has facilitated a harmonious development of green landscapes and ecological environments.



Social

Material Issues for Response

Innovation, Ethics of Science and Technology, Product and Service Safety and Quality, Equal Treatment of SMEs, Due Diligence, Employees, Rural Revitalization, Social Contributions

Key SDGs Addressed



Uniting Innovative Strength Jointly Creating a Prosperous Future

Shougang Co. continues to strengthen its innovation and R&D capabilities, driving high-quality development through advanced technological innovation. The company focuses on intelligent manufacturing, consistently advancing equipment intelligence, digitalized management, and smart decision-making. We have established a comprehensive product quality and customer service management system, enhancing customer service capabilities and quality. The company also systematically and scientifically enhances human resource management, refining its talent management system, safeguarding employee rights, and promoting the synergy between individual employee development and the company's sustainable growth. Furthermore, we actively support public welfare initiatives, prioritizing areas such as rural revitalization, disaster relief, and volunteer services, fostering integration with the city and harmonious coexistence with the community.



2024 Highlights and Achievements

6 Debut Products, 2 Debut Processes, 1 Set of Debut Equipment

Cold-R Co. Selected as "Lighthouse Factory"

Shougang Zhixin Listed on the "China Unicorn Enterprise List", Recognized as a Leading Enterprise in Advancing the Construction of a Quality-Driven Nation

100% Coverage Rate of ISO 45001 Occupational Health and Safety Management System Certification and HSE Management System Certification

Awarded the Outstanding Psychological Service Promotion Project by the Beijing Municipal Federation of Trade Unions

Received a Total of 38 Customer Awards



Innovation

Shougang Co. adheres to an innovation-driven strategy, taking high-end, high-efficiency, intelligent, and green transformation as development directions. The company focuses on world's cutting-edge technologies, strengthens its independent innovation capabilities, and accelerates the transformation and application of scientific and technological achievements. By driving high-quality development through advanced technological innovation, we cultivate New Quality Productive Forces, lead the steel industry and value chains toward the high end, and facilitate the optimization and upgrading of steel industry structures in the process of Chinese-style modernization.

➤ Governance

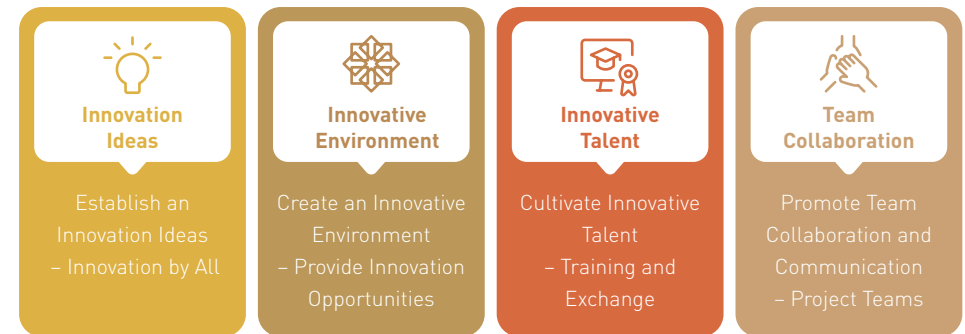
Technology Innovation Management Framework

Shougang Co. has established a clear hierarchy, clear responsibilities, and scientifically sound organizational system of technology innovation. Vertically, a multi-level R&D framework - "one research institute with multiple R&D centers" - has been established, comprising the Shougang Research Institute of Technology, Qianshun/Jingtang Technical Center, the Manufacturing Department, and the Operation Departments. The Research Institute of Technology is dedicated to exploring and practicing innovation systems and is responsible for the research and development of new products, technologies, processes, and materials; the Qianshun/Jingtang Technical Center focuses on the R&D of cutting-edge products, major processes, and key equipment; the Manufacturing Department and Operation Departments are responsible for on-site technical support and implementing trial projects, respectively. Horizontally, innovation platforms such as joint laboratories, EVI user technology laboratories, expert workstations, and the Innovation Studio Alliance have been established, forming an open innovation management system that deeply integrates industry, university, research, and application.

The company plans to establish a global R&D center focusing on electrical steel development. In 2024, the Suzhou Electrical Steel Application Technology Laboratory has been built and put into operation. It has already undertaken more than 30 cutting-edge research projects and released several new technologies, including a self-bonding coating, thereby providing new material support for the development of the electrical steel industry.



Technology Innovation Philosophy

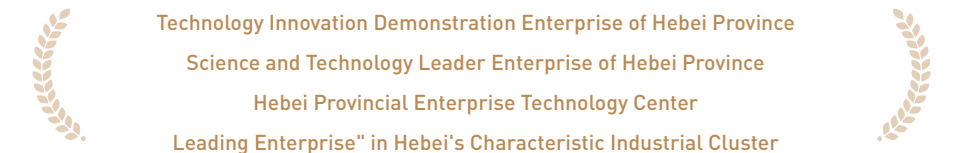


Integrate with Corporate Strategy



Shougang Zhixin

Science and Technology Reform Action Demonstration Enterprise" by the State-Owned Assets Supervision and Administration Commission of the State Council
National Manufacturing Champion Demonstration Enterprise in Electrical Steel



Listed on the "China Unicorn Enterprise List"

Initiated the Establishment of the Hebei Engineering Research Center for Electrical Steel, with the Approval of the Hebei Provincial Development and Reform Commission

Secured a Core Talent (Technology Platform) Project under the Hebei Province 2024 "Yan Zhao Golden Stage Accumulating Wealth Plan"

Technology Innovation System

To ensure that technology innovation activities proceed in an orderly and efficient manner, Shougang Co. has developed a series of management systems covering aspects such as technology project management and protection of technological achievements. These include the *Technology Project Management System*, *Technology Confidentiality Management System*, *Technology Achievement Management System*, and *Patent Management System*, which provide institutional guarantees for the entire life cycle management of technology projects.

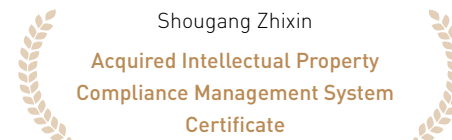
The company's *Technology Project Management System* clearly stipulates that technology projects must adhere to recognized principles and standards, comply with technological ethics, and that both project initiation demonstrations and final acceptance must undergo ethical review. Meanwhile, the company emphasizes on enhancing the ethical and moral qualities of its technical personnel by strengthening training, supervision, and mechanisms for addressing violations, thereby ensuring that all research activities meet legal, regulatory, and ethical requirements.

Intellectual Property Rights Management

Shougang Co. attaches great importance to the management and protection of intellectual property rights, having established a vertical intellectual property rights management system, forming an independent intellectual property rights management pattern that reserves core technologies in the form of patents and technological secrets. The company's Intellectual Property Rights Management Leading Group serves as the primary leadership body for intellectual property rights management, while the Qianshun Technical Center handles patent management and the Manufacturing Department oversees the management of technological achievements. Together, these bodies are responsible for the entire process of intellectual property rights creation, utilization, protection, and operation.

The company complies with the *Patent Law*, *Trademark Law*, and *Copyright Law of the People's Republic of China*, among other relevant regulations, and continuously improves its intellectual property rights work system and management mechanisms. We standardize the full process management of patents - from identification and application to maintenance and utilization - and regulate matters such as the classification, transfer, and supervision of technological secrets. In 2024, the company revised and enhanced a series of intellectual property rights management systems, including the *Patent Management System*, *Technology Confidentiality Management System*, and *Patent Management Work Plan*. Additionally, the company regularly conducts training on

intellectual property rights standards and comprehensive capability enhancement, and actively participates in advanced intellectual property rights training organized by regulatory authorities. This commitment has helped to raise overall awareness of intellectual property rights protection, foster a strong culture of respect for intellectual property rights, and improve management standards.



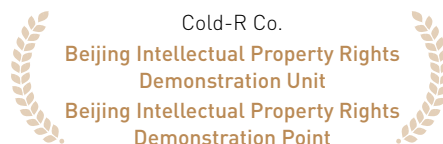
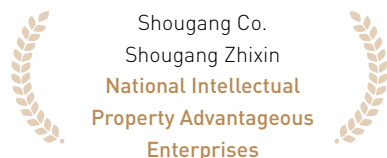
Strategy

Shougang Co. continuously strengthens its "technology innovation + R&D" capabilities, focusing on four key areas: high-efficiency manufacturing, high-quality manufacturing, intelligent manufacturing, and green manufacturing. The company conducts forward-looking technology innovation activities, resulting in a series of independent intellectual properties and research achievements that provide customers with robust technological support and elevated service guarantee. In 2024, the company launched over 200 technical projects covering fields such as new materials, new processes, and green low-carbon development, propelling the industrial chain toward high-end, intelligent, and sustainable transformation.

Aiming at critical challenges that constrain national development and security, the company actively pursues both independent and collaborative breakthroughs, ensuring the supply of independent materials for major national projects and actively participating in key national R&D projects. In 2024, Shougang Co. took part in 10 national key R&D projects.

Participating in National Key R&D Projects

- Industrial Control Equipment Modeling Language and Development Tools for IT-OT Convergence
- Key Materials Technology for High-End Agricultural Machinery Equipment with High-Performance, Lightweight, and Low-Cost
- Joint R&D on Key Technologies for Enhancing Biomass Carbonization and Achieving Clean Blast Furnace Smelting
- Development of Novel Corrosion-Resistant Steel for the NHDJ Floating Structure Platform
- Key Common Technologies and Applications for Ultra-Low Carbon Emissions in Integrated Iron and Steel Production



Innovation Achievements in Science and Technology

In 2024, the company achieved numerous research results, including 6 debut products both globally and domestically, 2 debut processes, and 1 set of debut equipment. The number of patent applications and grants steadily increased, and the company has won many awards at the national, provincial, and industry levels. As of the end of the reporting period, the company had cumulatively secured over 340 key core technologies, with a total of 56 debut products (among which 9 were global firsts); 9 debut processes (of which 8 were global firsts); and 4 sets of debut equipment (including 1 global first).

At the 27th National Invention Exhibition "Belt and Road" & BRICS Skills Development and Technological Innovation Competition, **54** patents of Jingtang Co. were awarded the "Invention and Innovation Award - Project Award", including **5** Gold Awards, **18** Silver Awards, and **31** Bronze Awards. Additionally, Jingtang Co. was honored with the "Best Organization and Recommendation Award".

"Automatic Unloading of Coils Method and Device of a Down Coiler", received the Excellence Award at the 25th "China Patent Award". Shougang Zhixin originated a Carousel coiling machine automatic unloading mode, establishing a standardized operating procedure that enables the automatic unloading of coreless coils.

In 2024, the company launched 6 debut products, including low-noise grain-oriented electrical steel, self-bonding coated non-oriented electrical steel, and 1500MPa-grade direct press-hardening steel. Among these, the low-noise grain-oriented electrical steel serves as a critical core material for DC collection systems in wind and solar power generation. It meets the new national transformer standards for reduced no-load losses while addressing grid operators' requirements for noise reduction, delivering a 10% lower noise level compared to conventional products. The self-bonding coated non-oriented electrical steel features a proprietary curing process that significantly shortens bonding time while substantially improving core stiffness and thermal conductivity. Notably, it reduces core iron losses by 30%, providing essential material support for energy efficiency upgrades in new energy vehicles. Meanwhile, the 1500MPa-grade direct press-hardening steel incorporates optimized pure zinc coating composition and innovative processing techniques, enhancing both corrosion resistance and weldability. This advancement reduces crack sensitivity during direct hot-forming processes, meeting the automotive industry's growing demand for high-strength, high-corrosion-resistant safety structural components.

6 Debut products

2 Debut processes

1 Set of debut equipment

As of the end of the reporting period, held

3924 Patents

1379 Invention patents

In 2024

945 Patents applied

Including **598** invention patents

405 Patents granted

Including **125** invention patents



14 Metallurgical Science and Technology Awards

1 Grand Prize 6 First Prizes
1 Second Prize 6 Third Prizes

Hebei Provincial Science and Technology Progress Awards

1 First Prize
1 Second Prize
1 Third Prize

"Green Clean Steelmaking Technology and Applications Based on CO₂ Resource Utilization" won the Second Prize of the National Science and Technology Progress Award

Bridge Steel and Key Technologies for its Application" won the First Prize of Hebei Provincial Science and Technology Progress Award



"Integration and Innovation of MCCR Multi-Mode Fully Continuous Casting and Rolling Technology" won the Grand Prize of the Metallurgical Science and Technology Award

"Development and Application of Key Technologies for High-Quality Automotive Outer Panel Steelmaking and Continuous Casting" won the First Prize of the Shanghai Science and Technology Award

Case: Integration and Innovation of MCCR Multi-Mode Fully Continuous Casting and Rolling Technology

In 2024, the project "Integration and Innovation of MCCR Multi-Mode Fully Continuous Casting and Rolling Technology", led by Jingtang Co. received the Grand Prize of the Metallurgical Science and Technology Award. The MCCR production line integrates the world's most advanced steelmaking processes and electrical automation technologies, making it the world's first multi-mode fully continuous casting and rolling production line.

Technological Innovation and Process Breakthroughs

The MCCR production line adopts a combination of independent and integrated innovation, pioneering an integrated production process that combines single-slab, semi-endless, and endless rolling modes. By fully considering the characteristics of material flow and energy flow, the line employs an integrated layout of steelmaking, continuous casting, and rolling. Under high-speed, uninterrupted operation, from molten steel to steel coils takes only 25 minutes - significantly reducing the processing time compared to over 200 minutes required by traditional methods, and thereby markedly enhancing productivity.

Breakthroughs in Extreme Specification Products

With continuous efforts from the production team, the MCCR line has progressively pushed product specifications to new limits. In 2022, it achieved batch rolling of products with an extreme specification of 0.8 mm thickness. In 2024, the production design limits were further surpassed with the batch rolling of 0.75 mm thickness and successful trial production of 0.7 mm thickness products, with multiple performance indicators reaching world-leading levels.

Industry Impact and Demonstrative Significance

The MCCR production line is characterized by its technological sophistication, innovation, and efficiency. Its advantages - including a short process flow, low investment, low energy consumption, multi-mode operation, and high efficiency - enable the flexible production of a wide variety of products under high steel throughput conditions. This breakthrough sets a benchmark for the comprehensive upgrading and innovation of global steel production processes, technologies, and equipment, and it has filled the gaps in multiple technological fields.

Case: R&D of Ultra-High-Strength Steel to Enhance Automotive Lightweighting and Safety

Energy efficiency, safety, and durability have become key trends in the development of passenger vehicles. Promoting the use of ultra-high-strength steel to achieve component lightweighting and improved safety is of paramount importance for the automotive industry. The hot-rolled pickled steel, which has been applied in batch to automotive crash systems and seat systems, predominantly have a strength grade of 800 MPa, with a limited use of 1000 MPa complex phase steel.

The company has developed an automotive-grade hot-rolled, pickled, ultra-high-strength, carbide-free bainitic steel, which overcomes challenges in the microstructure and performance control of 1000MPa-class ultra-high-strength steels and addresses issues such as sensitivity to edge cracking that restrict stable production and usage. This breakthrough fills a gap in both domestic and international markets. The product achieves a 15% reduction in edge punching crack sensitivity, a 26% decrease in mechanical properties anisotropy, and an 18% improvement in fatigue life, thereby realizing both lightweighting and enhanced safety.

Case: Innovative Exploration of Burner Technology to Achieve Ultra-Low CO Emissions in Hot Stove

To achieve ultra-low CO emissions in internal combustion hot stove, Shougang Co. conducted comprehensive, in-depth research. The company employed multi-field coupled numerical simulations, cold-state model experiments, and actual operational tests of hot stove. Based on these researches, Shougang Co. originated a novel rectangular burner featuring a grating structure, which maintains a stable wind temperature of 1250°C while achieving a high burnout rate of gas, ultimately controlling the CO concentration in the hot stove to an ultra-low level of 534 ppm.

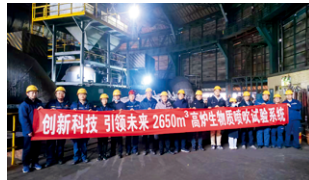
The project's research outcomes have obtained 19 authorized patents (including 14 invention patents), 1 software copyright, and editor-in-chief of 1 national standard specification, as well as the publication of over 20 academic papers.



Case: Successful Implementation of 100-Tonne Level Biomass Hydrogen-Enriched Micro Powder Injection, Breaking through New Field of Steelmaking Smelting

Currently, research on biomass hydrogen-enriched fuel injection for blast furnaces in China remains largely at the theoretical and laboratory stage, with no industrial trials conducted, the feasibility and safety of injection and its influence on blast furnace conditions are limited. Biomass has the advantages of being renewable, carbon neutral and rich in resources. However, its low ignition point, poor grindability, high moisture content, and high volatile content make it difficult to directly inject into the blast furnace through the existing pulverizing system.

In early December 2023, Shougang Co. initiated the third phase of biomass hydrogen-enriched micro powder injection trials. During the trial, technicians adopted an autonomous-designed and developed biomass coke and pulverized powder injection device, achieving a maximum injection capacity of 2.4 t/h and a cumulative injection of 100 tonnes. With the reduction in pulverized coal injection, the blast furnace operated stably. This successful continuous injection of 100-tonnes level biomass hydrogen-enriched micro powder marks the first breakthrough in utilizing biomass energy in China.



Case: Breakthrough in Blast Furnace Gas Purification Technology, Achieving Global First Demonstration Application

Since 2018, Shougang Co. has been tracking and researching source-control technologies for blast furnace gas. From August 2020 to May 2023, the company, in collaboration with Beijing University of Science and Technology, Beijing Shougang International Engineering Technology Co., Ltd., and other partners, formed a dedicated team. Through five pilot tests and two industrial-scale experiments, they developed a process combining "dechlorination, hydrolysis, wet oxidation desulfurization, and elemental sulfur extraction". In January, 2024, this process was applied as the Global first demonstration system at No. 2 Blast Furnace of Qiangang Co. By the end of 2024, the system achieved a 100% operational rate under all gas flow, operating conditions, and time periods, with zero waste and high-efficiency, stable performance.

The "Development and Application of Deep Purification of Multi-Pollutants in Blast Furnace Gas and Sulfur Resource Utilization Technology" project has obtained 12 authorized invention patents and software copyrights. With excellent performance indicators, it offers significant economic, environmental, and social benefits, providing robust technical support for the steel industry's green and sustainable development.



Case: Jingtang Co.'s Plates Empower the Changzhou/Taizhou Yangtze River Bridge to Set a World Record

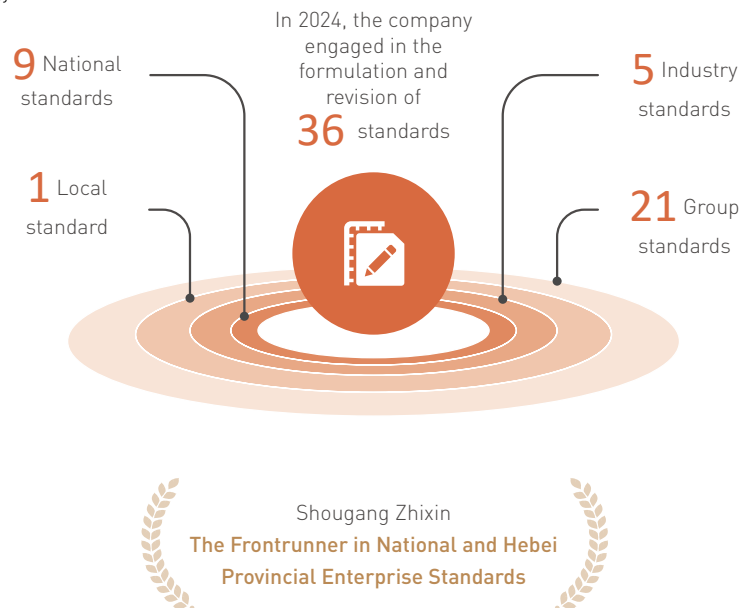
Jingtang Co.'s plates have been applied to the structure of the Changzhou/Taizhou Yangtze River Bridge - the longest-span cable-stayed bridge in the world, which boasts six "world's firsts" and four "world inaugural innovations". Given the bridge's enormous span and high load-bearing requirements, there are stringent demands on the toughness and weldability of the plates.

To meet these demands, Jingtang Co. initiated a dedicated R&D project. The team overcame industry challenges such as controlling surface quality under the conditions of specially designed steel compositions and reconciling high alloy content with the corrosion resistance required for marine climates. As a result, Jingtang Co. successfully developed products whose performance indicators fully exceed customer requirements. The products exhibit industry-leading strength, low-temperature toughness, and resistant to marine atmospheric corrosion. Furthermore, the technical team investigated the effects of various process parameters and microstructures on the yield ratio, designing a new composition system and developing a soft-phase yield ratio control technology. This innovation enabled stable control of key indicators, thereby ensuring the safety of the bridge's steel structure.



Standards Leadership

Shougang Co. has always adhered to a standards guidance, taking the lead in or participating in the formulation and revision of standards related to production technology, green low-carbon, energy conservation and environmental protection, and intelligent manufacturing. These efforts lead the development direction of steel product production technology and green environmental protection technology.



Case: Technical Specification for pH Control of Blast Furnace Gas Rated as Application Demonstration Project of China Iron and Steel Association Group Standard

Blast furnace gas is an important by-product of the ironmaking process. After recovery, compression, and supply as fuel, it contains ions such as sulfur, sulfate, and chloride. The condensate formed from these impurities is highly acidic (with a pH value of 2-3), which can corrode ancillary facilities and severely affect the continuous, stable operation and safe production of steel mills.

Jingtang Co. innovatively developed and optimized multiple technologies to adjust the pH of blast furnace gas to neutral, thereby addressing the challenge posed by the gas's high temperature and ensuring the long-term safe and stable operation of the blast furnace gas system.

Jingtang Co. led the drafting and publishing of the group standard *Technical Specification for pH Control of Blast Furnace Gas*. This standard provides a reference for the design, modification, and operational management of blast furnace gas pH control systems within the industry, filling a national and industry gap. The project was rated as Application Demonstration Project of China Iron and Steel Association Group Standard.



Case: Hosted the Formulation of National Standard GB/T 38216.5-2024 Steel Slag—Determination of Manganese Oxide Content—The Flame Atomic Absorption Spectrometric Method Titrimetric Method

With the annual increase of steel slag output in China year by year, the utilization of steel slag has become a key industry topic and an important link in achieving "zero emissions". Steel slag is complex in composition, and the manganese oxide content (with a mass fraction ranging from 0.1% to 10%) greatly influences its utilization. Against this backdrop, Jingtang Co. hosted the formulation of the national standard GB/T 38216.5-2024, titled *Steel Slag—Determination of Manganese Oxide Content—The Flame Atomic Absorption Spectrometric Method*, to accurately determine the manganese oxide content and thus provide a reliable basis for steel slag utilization.

Case: Hosted the Formulation of Group Standard T/SSEA 0357-2024 T/CSTA 0072-2024 Technical Specification for Green-Design Product Assessment—Non-Oriented Electrical Steel for Household Appliances

The production of non-oriented electrical steel is associated with relatively high energy consumption and unreasonable recycling and utilization of waste water and effluents. In response, Shougang Co. took the lead in formulating the group standard T/SSEA 0357-2024 T/CSTA 0072-2024, titled *Technical Specification for Green-Design Product Assessment—Non-Oriented Electrical Steel for Household Appliances*. This standard aims to standardize the evaluation of green design products in non-oriented electrical steel used in home appliances, thereby promoting green production practices and supporting the home appliance industry's full lifecycle of green, low-carbon development.

➤ Risks and Opportunities Management

During the implementation of its innovation-driven strategy, Shougang Co. faces various risks and opportunities. To effectively address and manage these, the company has conducted a systematic assessment and developed corresponding response strategies.

Risks	Response Measures
Uncertainty in R&D Outcomes	Strictly control the whole life cycle management of science and technology projects. Create an innovative environment, and intensify the cultivation of leading talents in technology and skills. Actively promote collaborative innovation among industry, university, research and application.
Leakage of Technological Achievements	Strengthen the promotion of technological confidentiality. Sign confidentiality agreements with technical personnel. Identify confidentiality matters, and reward project team members accordingly.
Loss of Technological Talent	Establish an information management system for technological innovation to platformize R&D data, ensuring continuity in the R&D process and mitigating the impact of unexpected events, such as the loss of key R&D personnel.
Rapid Pace of Technological upgrading and Replacement	Lead steel industry technology development by continuously increasing R&D investment. Actively host or participate in steel industry exchanges to stay informed on strategic, holistic, and forward-looking major issues.
Opportunities	Utilization Measures
Rapid Growth in Downstream Demand for Green Steel	Focus on the downstream user and the full industry chain trends toward lightweight, high-end, and green products, and actively develop specialized green steel products.
Increased Demand for High Value-added and Differentiated Steel Products	Boost original innovation efforts to cultivate debut products, debut processes, and debut equipment. Enhance employees' technological innovation capabilities and R&D levels through expert training sessions, a series of activities, and increased R&D incentives.

Deepening Talent Cultivation

To reduce the uncertainties in research and development outcomes and the risks of losing technical talent, Shougang Co. continuously creates an innovative atmosphere, provides conditions for innovation, and optimizes innovation mechanisms. The company has established evaluation, fault-tolerance, incentive, and training mechanisms that match its technological innovation efforts.

The company places great importance on cultivating leading talents in technology and skills, and boasts an industry-leading R&D team with over 100 leading technical experts. Among these are 3 Shougang Scientists, 24 Chief Technical Experts, 49 Chief Engineers, 11 Shougang Craftsmen, 8 Shougang Co./Jingtang Co. Craftsmen, and 25 Chief Skill Experts, all of whom provide first-class talent support for technological innovation.

By organizing activities such as university professor forums, Innovation Festivals, and employee invention contests, the company fosters an innovative environment and enhances employees' awareness of innovation. Leveraging innovation platforms like expert workstations, employee innovation studios, and youth innovation workstations, the company cultivates a high-level R&D team through challenging innovative projects. We also hold a series of events, including the Qianshun – Jingtang Technical Center product and process technology exchange meetings and "Technology Salons", to deeply explore technical challenges and promote the transformation and application of innovative achievements. Through training programs such as the "Great Craftsman Lecture Series", "Innovation Grand Lecture Series", and key training classes for the employee innovation studio, as well as projects like the "Deep Blue Special Training Camp" and "Future Craftsman Youth Training Camp", the company enhances employees' technological innovation capabilities and cultivates a workforce that is learning-oriented, knowledge-based, skilled, and innovative. Special innovation awards—including Shougang Scientist Awards, Shougang Craftsman Awards, R&D Project Awards, Technology Achievement Awards, and Small-Scale Competition Awards—are also established to stimulate innovative vitality.



Qianshun – Jingtang Technical Center Product and Process Technology Exchange Meeting



Professor Forum



Expert Workstation

3 Shougang Scientists

24 Chief Technical Experts

49 Chief Engineers

11 Shougang Craftsmen

8 Shougang Co./Jingtang Co. Craftsmen

25 Chief Skill Experts

As of the end of the reporting period, the company has established 126 Employee Innovation Studios, of which 16 are recognized as industrial-level or Beijing-level demonstration studios. In total, 4488 innovative achievements and 1298 invention patents have been completed, and 1889 person-times of talents have been trained. There are 16 "Five-Star" Innovation Studios, 28 "Four-Star" Innovation Studios, and 28 "Three-Star" Innovation Studios.

In 2024, the Innovation Studios completed 1387 innovative achievements.

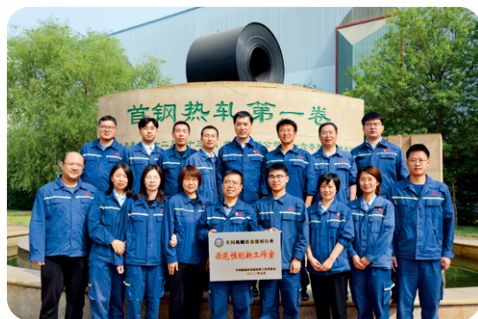
1 Employee awarded the 2024 National-level May Day Labor Medal, **1** Employee selected among the first cohort of "China's Master Artisan" cultivation candidates

In 2024

Jingtang Co. project titled "Igniting Innovation Passion, Gathering Innovation Energy, and Promoting High-Quality Corporate Development" was recognized as a typical case of Employee Innovation Studio creation at the inaugural Employee Innovation Studio Experience Exchange Conference and Innovation Achievement Exhibition.

In 2024

7 Innovation Studio Alliances participated in the Beijing Industrial (National Defense) Trade Union Employee Innovation Achievement Display and Exchange Event and were awarded the plaques; **6** Innovation Studios from Jingtang Co. were awarded "Excellent Experience in Creating Innovative Studio for Employees"



Dong Lijie Innovation Studio



Liu Lei Innovation Studio

Abundant Employee Innovation Achievements

In 2024

Innovation Achievements in the National Machinery, Metallurgy, and Building Materials Industry

3 Special Prizes, **11** First Prizes, **18** Second Prizes, and **84** Third Prizes

1 Capital Employee Independent Innovation Achievement Award

1 First Prize for Frontline Workers' Technological Achievements in the Metallurgical Science and Technology Award

43 Invention patents and **1** innovation project received the 2024 Employee Innovation and Invention Support Award from the Beijing Federation of Trade Unions

The 27th National Invention Exhibition

9 Gold, **23** Silver, and **38** Bronze Awards

Case: Deng Zhenyue Innovation Studio

Established in April, 2018, Deng Zhenyue Innovation Studio currently comprises 26 core members. The studio focuses on innovation activities throughout the entire production and business process, empowering the enterprise to build New Quality Productive Forces.

As of the end of the reporting period, the studio has obtained 10 invention patents and 80 utility model patents, and published 12 professional papers. It has also received several honors, including the Silver Award at the Beijing Invention Awards, 2 Silver Awards and 1 Bronze Award at the China Invention Competition, the Third Prize for Frontline Workers' Technological Achievements in the Metallurgical Science and Technology Award, the Special Prize for Employee Technological Innovation Achievements in the National Machinery, Metallurgy, and Building Materials Industry, and the First Prize for Employee Quality Achievements in the National Steel Industry, among other accolades.



Scientific Research Infrastructure

Shougang Co. attaches great importance to the construction of technological R&D hardware facilities. The company has purchased R&D instruments and equipment such as ultrasonic flaw detectors and scanning electron microscopes, and established a fully automated analysis center to robustly support the development of new products and processes. In addition, to further standardize the process management of R&D projects, the company has created an information management system for technological innovation, characterized by its efficiency, speed, and traceability, which enables the efficient management of the entire R&D process and data sharing. Qiangang Co., Jingtang Co., Cold-R Co. and Shougang Zhixin have all been certified by national laboratories (CNAS).

Collaboration among Industry, University, Research and Application

Shougang Co. actively promotes collaborative innovation among industry, university, research and application, continuously strengthening fundamental, strategic, and forward-looking research in process technology, and fully leveraging the collaborative potential of joint R&D platforms.

Collaboration with Universities. The company actively deepens its cooperation with universities such as Tsinghua University, Beijing University of Science and Technology, and Northeastern University, jointly establishing research centers, laboratories, and expert workstations to achieve resource sharing and complementary advantages. Through project collaborations, technical exchanges, academic interactions, and specialized competitions such as "Leading by Example" challenges, the company harnesses collaborative innovation, cultivates an innovative talent pool, accelerates the transformation of research outcomes into practical productive force, and promotes the deep integration of the education, innovation, and industrial chains. In 2024, Shougang Co. signed a cooperation agreement with Northeastern University to further expand the depth and breadth of cooperation.



Collaboration with Downstream Users. The company, along with its partners, has jointly established cross-industry, cross-regional, and cross-enterprise laboratories and Innovation Studio Alliances, and organized events such as product technology forums, "Shougang Day", and technology exchange days. We have set up joint projects to continuously deepen technical cooperation and advance research and development of key projects. Leveraging technological innovation, collaborative breakthroughs, and process innovations, the company achieves comprehensive and multi-angle early involvement and efficient communication, jointly overcoming key strategic challenges in new steel materials that restrict the development of the industry chain, and thereby supporting the upgrade of the entire industry chain.

Industry-University-Research-Application Platforms

Joint Laboratories: In collaboration with universities, research institutions, and downstream users, the company has established 23 joint laboratories, engaging in over 50 collaborative research projects. These laboratories focus on tackling technological challenges in new materials, high-end equipment manufacturing, and low-carbon environmental protection.

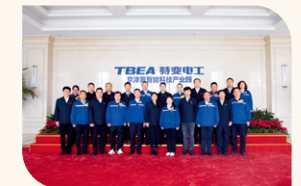


EVI User Technology Laboratories: These laboratories are designed to offer comprehensive service capabilities along the entire value chain - from material selection and customer product design to iron core processing and motor testing. Shougang Zhixin's New Energy Vehicle Motor Laboratory has obtained CNAS certification, making it the only enterprise in the China steel industry equipped with both performance testing and inspection qualifications for new energy vehicle motors.

Expert Workstations: 27 expert workstations have been established, focusing on technologies in ironmaking, steelmaking, rolling, material development, low-carbon initiatives, and environmental protection. Led by experts such as Wu Shengli, Wang Xinhua, and Kang Yonglin, these workstations drive R&D efforts, develop cutting-edge technologies in products and processes, bolster high-level talent development, and optimize the organization and management of research and technical teams.



Innovation Studio Alliances: In 2024, the company formed 2 Innovation Studio Alliances in collaboration with partners such as SAIC Volkswagen and Zhufeng Silicon Steel Company, completing 21 technical breakthrough projects. As of the end of the reporting period, the company has established a total of 13 Innovation Studio Alliances. These alliances further strengthen the technical service for user, promote cross-industry collaboration, foster knowledge complementarity, and drive collaborative innovation, thereby boosting the overall competitiveness of the supply chain.



Innovation Studio Alliance with Zhufeng Silicon Steel

Case: Establishment of the Shougang Co. • BMW Brilliance • Shenyang University of Technology Tripartite Innovation Alliance Center

In 2024, Guo Dapeng Innovation Studio of the Shougang Co. Marketing Center, in collaboration with Guo Yingliang Innovation Studio of BMW Brilliance and Shenyang University of Technology, jointly established the Shougang Co. • BMW Brilliance • Shenyang University of Technology Tripartite Innovation Alliance Center. This initiative aims to promote the deep integration of industry, university, research and application, thereby building an innovation ecosystem across the entire industry chain.

The Innovation Alliance Center integrates resources from all parties and focuses on the full process of automotive sheets mechanism research, material development, production manufacturing, and stamping applications. It fosters comprehensive collaboration by closely combining the "Material Science Professor Team", the "Material Manufacturing Professional Team", and the "Automotive Sheets Stamping Expert Team", further promoting the deep integration of the talent chain, innovation chain, and industry chain.



Case: Joint Technical Breakthrough to Support New Model of Automakers and New Energy Technology Advances

As a core supplier of hot-formed steel, Shougang Co. collaborates closely with its customers to promote and apply new materials and processes, continuously deepening product innovation.

At the early stage of a new model project by a leading automaker, Shougang Co. cooperates closely with this company - focusing on material certification, material selection, welding certification, and hot press forming processes. Through multiple online and offline exchanges and joint technical problem-solving, we provided the optimal solution for the new model's technical processes, achieving a breakthrough in collaborative innovation. Subsequently, both parties further advanced cooperation on new forming processes such as thermal expansion hot press forming and promoted new products in which steel replaces aluminum in new energy battery packs, significantly driving technological progress for both sides.

Case: Jingtang Co.'s Industrial Mass Production of the First Domestic High-Strength Steel for Transformer Housings

Jingtang Co. has long focused on lightweight research for equipment materials. Through material upgrades and design weight reduction, the company supports advanced equipment R&D with product technological innovation, providing customers with lightweight product solutions.

After learning about Jingtang Co.'s achievements in product lightweighting, a well-known domestic transformer manufacturer initiated joint R&D on lightweight steel for transformer housings. Jingtang Co. adopted an EVI mode, conducting a comprehensive lightweight analysis for transformer housings based on customer requirements. This collaboration achieved a weight reduction of over 7.5% per unit, which not only improved transportation capacity but also reduced energy consumption.

By cooperating closely with downstream users, Jingtang Co. has not only consolidated its existing product advantages but also continuously expanded product applications across various fields, thereby contributing to the realization of the "dual carbon" goals.



Industry Communication

As an industry leading enterprise in technological innovation, Shougang Co. actively participates in and organizes various industry associations and professional forums to establish communication and exchange platforms. This enables the company to fully understand the latest developments and trends in industry, while providing service and collaboration opportunities for enterprises along the supply chain. These efforts contribute significantly to the transformation, upgrading, and sustainable development of the industry.

Case: Participation in the China Green Chain Initiative Alliance

In January 2024, the first general meeting of members of the China Green Chain Initiative Alliance was held in Shanghai, attended by 9 alliance members representing the steel, non-ferrous metals, chemical, die-casting, injection molding, automotive, and other industries. The alliance is dedicated to jointly promoting innovation and development within the green industrial chain and constructing an open, collaborative ecosystem. At the kickoff meeting, alliance member representatives solemnly signed a scroll - each signature symbolizing a firm commitment and reflecting the members' unwavering belief in sustainable development and low-carbon initiatives.



➤ Metrics and Targets

In terms of technological innovation, Shougang Co.'s overall development goal is to make technological innovation its primary competitive advantage, gradually improve the technological innovation system, and steadily enhance management capabilities. To achieve this goal, the company sets specific annual targets and continuously tracks results through monthly business analysis meetings, monthly management meetings, weekly quality meetings, management system audits, and benchmarking analyses, thereby ensuring the completion of its annual objectives.

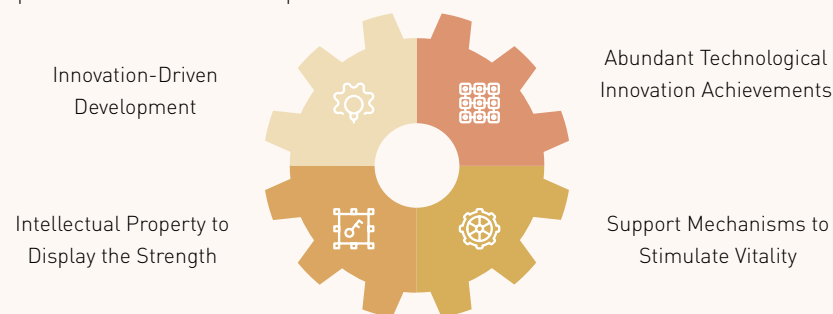
Target		Unit	2024 Goals	2024 Results
Actively respond to national new energy policies and promote high-end product development	Proportion of High-End Leading Products	%	50	64.6
	Proportion of EVI Output	%	18	20.1
Shorten the R&D cycle and reduce R&D costs	Newly Launched Debut Products	Item	4	6
	Proportion of R&D investment to operating revenue	%	4	4.52
Maintain a certain ratio and continuous R&D investment	Number of Patents Granted	PCS	300	405
	Number of Invention Patents Granted	PCS	100	125

In the future, the company will continue to take national strategic objectives as its responsibility, relying on the improvement of the aforementioned target indicators. It will steadily advance R&D in advanced manufacturing, high-quality manufacturing, intelligent manufacturing, and green manufacturing, focusing on cutting-edge fundamental technologies, common key technologies within the industrial chain, and customer- application technologies. By full use of the advantages of technical talents, innovation platform and three-dimensional research and development of joint laboratories- the company will continuously overcome critical technological bottlenecks and build technological innovation into Shougang's primary competitive advantage.

Special Topic

Shougang Zhixin Building a New Height in Innovation Across the Industrial Chain

With the rapid development of China's new energy vehicle industry, Shougang Zhixin's product service network now spans over 60 Fortune 500 companies. Shougang Zhixin has been recognized as a high-tech enterprise and as a national champion demonstration enterprise in electrical steel manufacturing. In 2024, Shougang Zhixin ranked 97th among 369 unicorn companies on the Unicorn² Enterprise List.



Innovation-Driven Development

Aiming to vigorously develop New Quality Productive Forces, Shougang Zhixin seizes the opportunity of the "Technology Reform Action" and adheres to the belief that "technology is the basis of survival, and innovation is the path to development". The company continuously improves its technological innovation system, deeply integrates innovation elements, and taps into its innovation potential to unleash technological vitality. By embedding innovation into every link of production, sales, research, and application, it steadily elevates the high-end, intelligent, and green development of Shougang electrical steel, further consolidating its industry-leading position.

Abundant Technological Innovation Achievements

Shougang Zhixin has globally launched several new debut products, including 8 for new energy vehicle electrical steel, with its non-oriented electrical steel market share ranking second nationally. The electrical steel products for new energy vehicle motors now cover all leading global new energy vehicle manufacturers. In the field of grain-oriented electrical steel, its applications have achieved full coverage in both UHV DC and AC transmission, and its ultra-thin specification products have maintained leading domestic market share for several consecutive years, securing its position among the world's top transformer material suppliers. Moreover, Shougang Zhixin has

² Unicorn Enterprises: Characterized by strong innovation capabilities, high growth potential, and strong market recognition, unicorn enterprises serve as key drivers of the new economy and the cultivation of new growth momentum, representing a typical example of new productive forces.

built the world's first specialized production line for new energy vehicle electrical steel and a dedicated production line for 100% thin specification, high magnetic induction grain-oriented electrical steel.

In 2024, Shougang Zhixin launched new products and introduced several new technologies, including a self-bonding coating.

Debut Product Globally: Achieves breakthroughs in strength and iron loss.

New Self-Bonding Core Technology: This technology is a key core innovation driving the iterative upgrade of new energy vehicle motors toward higher efficiency and lower losses. It leads the development trend of automotive and thin strip motors - a field with significant development challenges. In recent years, Shougang Zhixin has focused on cutting-edge market demands, leveraging its coating laboratory advantages to intensify research on curing mechanisms and component design. Shougang Zhixin has established several specialized production lines for self-bonding coatings for automotive motors and thin strips, successfully developing two types of fast self-bonding coatings (M3 and M7) that demonstrate significant advantages in adhesion speed, adhesion strength, and film thickness precision. These coatings have been adopted early by leading automotive OEMs. This technology will provide new material support for upgrading energy efficiency in new energy vehicles and enable future applications of thin strips in intelligent robotics and low-altitude economies, thereby supporting the high-quality development of the national power and motor industries.

Intellectual Property to Display the Strength

Shougang Zhixin has been honored with the title "National Intellectual Property Advantageous Enterprise" and recognized as the Frontrunner in National and Hebei Provincial Enterprise Standards. 1 of its patents have received the Excellence Award at the 25th China Patent Awards, and 1 patent has been awarded the Excellent Award at the Hebei Patent Awards. In addition, the company has secured 6 PCT international patents. In September 2024, Shougang Zhixin obtained certification under a new standard for its intellectual property compliance management system.

As of the end of 2024, Shougang Zhixin had been granted 344 patents, published 227 academic papers, and led or participated in the formulation of 33 standards. Shougang Zhixin has also won 4 Metallurgical Science and Technology Awards, 8 Beijing and Hebei Provincial Science and Technology Progress Awards, and 1 First Prize in national-level management innovation achievement.

Support Mechanisms to Stimulate Vitality

Based at its Qian'an facility, Shougang Zhixin has established a specialized Global R&D Center and continuously increased its R&D investment. The company has built 14 joint laboratories with leading downstream customers, top research institutions, and renowned universities, and has equipped these labs with nearly 100 sets of research equipment. The annual EVI supply volume repeatedly

setting new records. In addition, Shougang Zhixin has created 10 innovation studios covering product R&D, process development, and electrical automation. Under the leadership of chief technical experts, chief engineers, and process technology heads, the company has formed technical breakthrough teams that span vertically across positions and horizontally across various processes, while vigorously fostering an all-employee innovation culture and perfecting its fault-tolerance mechanisms.

Suzhou Electrical Steel Application Technology Laboratory:

Building on its Suzhou laboratory, Shougang Zhixin established the Zhixin Suzhou Subsidiary to create a high-efficiency, high-tech "bridgehead" for user services, continuously enhancing R&D capabilities and accelerating the transformation of innovative outcomes. In early 2024, the Suzhou Electrical Steel Application Technology Laboratory was constructed and put into operation. Focusing on self-bonding coating application technology, stamping and cutting processing technology, and multidimensional near-application magnetic measurement techniques, the laboratory has carried out specialized application research. By offering comprehensive, in-depth, personalized, and highly effective customized services through EVI, Shougang Zhixin provides integrated solutions for efficient product production and operation. This approach promotes the broad application of soft magnetic material products in new energy, hydrogen energy, drones, and the low-altitude economy, expands service domains, and helps build a world-class brand for Shougang soft magnetic materials.

Looking ahead, Shougang Zhixin will persist in driving development through innovation, continuously deepening its focus on "the pillars of great power", "debut products", and "original technologies". Shougang Zhixin will relentlessly enhance the core competitiveness of Shougang electrical steel and accelerate the development of New Quality Productive Forces.



As of the end of 2024, Shougang Zhixin

Authorized **344** patents

Published **227** Academic Papers

Led or participated in the formulation of **33** standards

• **4** Metallurgical Science and Technology Awards

• **8** Beijing and Hebei Provincial Science and Technology Progress Awards

• **1** First Prize in national-level management innovation achievement

Intelligent Manufacturing

Shougang Co. actively leverages big data, cloud computing, artificial intelligence, 5G, and other advanced digital and intelligent technologies, fully integrating them with steelmaking, enterprise operations, product services, and supply chain collaboration. This drives the automation, digitization, networking, and intelligence of key business processes, using digital and intelligent transformation as the engine to build New Quality Productive Forces and create new growth drivers and competitive advantages for the company's development.

In 2024, to accelerate its digital transformation, the company developed the *2024-2026 Shougang Co. Digital Transformation Action Plan* based on the *Digital Transformation Work Plan for the Raw Materials Industry (2024-2026)* and the *Three-Year Action Plan for Digital Transformation in the Steel Industry*, in conjunction with the *Shougang Co. Smart Manufacturing "14th Five-Year" Special Plan*. This action plan is designed to comprehensively enhance foundational technical capabilities, manufacturing synergy, operational control, and management service capacities, thereby facilitating higher quality, more efficient production, improved cost performance, superior service, and a more agile supply chain. In 2024, the company achieved its targets as planned and made significant progress across multiple dimensions.

Dimensions	2026 Goals	2024 Progress
Optimize control models	Deepen the integrated control for efficient collaboration.	The 2024-2026 Shougang Co. Digital Transformation Action Plan is gradually advancing
Enhance the demonstration effect	Achieve 4+ typical digital scenarios	Successfully built 6 digital typical scenarios ahead of schedule: An integrated digital control platform application case for carbon footprint management Full-process quality control for steel production based on an industrial internet platform Jingtang Co. started the upgrade and transformation journey of 5G+ smart steel A multi-agent collaborative robot for ladle repair An AI-driven intelligent behavior decision contour instrument for steel sheets Comprehensive safety intelligent control across all processes in the steel industry
		Completed ahead of schedule: The Cold-R Co.'s intelligent factory for high-end automotive sheets with refined full-service collaborative control Jingtang Co.'s data-driven "One Core, Four Levels, Multi-Variant" intelligent factory
		In gradual progress as planned
		In gradual progress as planned
Boost digital empowerment	Build 1 industrial internet platform	In gradual progress as planned
	Enable more than 200 applications of digital technology empowerment	80 digital technology empowerment applications have been completed
Consolidate the digital foundation	Reach a 90% numerical control rate for key processes	100%[Completed ahead of schedule]
	Attain a 55% digitalization rate for production equipment	91.26%[Completed ahead of schedule]
	Achieve a 40% machine substitution rate for 3D (simple, repetitive, high-intensity labor) positions	In gradual progress as planned
	Participate in the formulation of 5 standards related to steel digital transformation	In gradual progress as planned



Intelligent Equipment

The company focuses on 3D positions to promote the construction of intelligent robots, automatic stacking and reclaim machines, and unmanned overhead cranes. Through innovations such as automatic belt inspection, automatic etching of coil identification numbers, automatic dressing in steelmaking (KR), and automated stacking and reclaim machines and overhead cranes, production efficiency and operational stability have been significantly enhanced. As of the end of the reporting period, a total of 240 industrial robot and 130 unmanned overhead cranes have been deployed. In addition, by integrating smart equipment and scenarios on the production line, the company has effectively addressed core issues in production processes, product quality, production efficiency, and production costs, thereby systematically advancing the construction of smart production lines and further improving production stability and product quality.

240 Industrial robot
130 Unmanned Overhead Cranes

Intelligent Decision-Making

The company has developed a series of business decision making models - such as spot control models, material standard cycle models, procurement material inspection, performance risk control, and multi-mode contract processing models - to realize a new mode of data decision-making. By fully exploiting data value at all levels through model-based processing, these initiatives provide robust support for business forecasting, decision-making, and analysis, continuously driving business improvements and capability enhancements. As of the end of 2024, the company has completed deploying of 149 business decision making models, and developed data applications for hot delivery and hot charging rate, reducing the rate of waste and defective products, product value-added rate, and downtime analysis, offering precise decision-making support for production, quality, and equipment operations.

Digital Control

The company adheres to universe, full-data thinking by deeply integrating next-generation information technologies such as big data and intelligent algorithms into production and operations management. By optimizing the dynamic scheduling of multi-process collaboration on the plate production line and implementing a smart logistics control platform, the company has comprehensively enhanced its smart manufacturing capabilities and overall production and operational levels. The digital performance platform built by the company enables multi-level management of performance indicators, offering root-cause analysis, problem identification, and closed-loop management for business metrics. This ensures that production and operation data are "visible, accurately measurable, and controllable", providing robust support for refined enterprise management.

Digital Infrastructure

Jingtang Co. has achieved full 5G dedicated network coverage across its entire plant, with 100% 5G coverage in outdoor areas. Concurrently, the company has introduced technologies such as data encryption, data masking, and leakage prevention to continuously enhance cybersecurity measures for 5G and virtualization, thereby providing a robust network foundation and security guarantee for digital transformation.

Jingtang Co.

Included in the Ministry of Industry and Information Technology's "2024 5G Factory Directory"

Hebei Province's "2024 Advanced Smart Factory List"

Recognized as the Annual Benchmark Demonstration Case in "5G + Industrial Internet" Applications

Honored as "Outstanding Contributor to Intelligent Manufacturing in the Steel Industry"

Honored as a Hebei Province "Digital Leading Enterprise"³

Cold-R Co.

Selected as Global "Lighthouse Factory"

please refer to the "Special Topic: Digital Transformation of Cold-R Co." section of this report

Selected as Excellence Level Smart Factory by the MIIT

Awarded as a National-level Smart Manufacturing Benchmark Enterprise

Shougang Zhixin

Awarded as a National-level Smart Manufacturing Benchmark Enterprise

The company actively expands its digital transformation ecosystem by exchanging experiences on digital transformation and smart factory construction with peer enterprises and customers. This initiative has garnered positive feedback from users such as Honda, Xiaomi, and Toyota.

³ Digital Leading Enterprise: The Digital Leading Enterprise evaluation was organized by the Hebei Provincial Department of Industry and Information Technology. It selected a group of steel companies with broad digital transformation coverage, high-level implementation, and strong innovation capabilities to strengthen the demonstration and leadership role of digital transformation in the steel industry. This time, two units were selected.

Award Recipients	Project	Awarding Authority	Awards
Shougang Co.	Application Case of an Intensive Digital Control Platform for Carbon Footprint Management Scenarios	Ministry of Industry and Information Technology	Typical case of digital transformation of key scenarios in steel industry of MIIT in 2024
Cold-R Co.	Intelligent Factory for Fine Collaborative Control of High-End Automotive Sheets	Ministry of Industry and Information Technology	2024 Excellence Level Smart Factory
Jingtang Co.	Intelligent Factory for High-End Green Premium Sheet Products Based on Digital Intelligence Engine	Ministry of Industry and Information Technology	2024 Excellence Level Smart Factory
Jingtang Co.	Comprehensive Intelligent Safety Management Across All Processes in the Steel Industry	Ministry of Industry and Information Technology	Typical Case of Digital Transformation in the Steel Industry
Jingtang Co.	Multi-Agent Collaborative Robot for Ladle Hot Repair, AI-Driven Intelligent Behavior Decision Contour Instrument for Sheet	Ministry of Industry and Information Technology	Typical Application Case of Artificial Intelligence Empowering New-Type Industrialization
Jingtang Co.	Leading Practice of a Data-Driven "One Core, Four Levels, Multi-Variant" Intelligent Factory	Ministry of Industry and Information Technology	Typical Case of Digital-Physical Integration in 2024 (Digital Leading Enterprise Practice Case)
Shougang Co.	Research and Application of a Data-Driven Intelligent and Precise Control Model for Hot-Rolled Coil	China Iron and Steel Association	Steel Industry Digital Transformation Typical Scenario Application Case
Shougang Co.	Full-Process Quality Control of Steel Production Based on an Industrial Internet Platform	Central Enterprise Smart Manufacturing Collaborative Innovation Platform	First Manufacturing Intelligent Solutions Innovation Competition – Excellence Award
Shougang Co.	Construction and Implementation of a Big Data Analysis System for Equipment Management in Steel Enterprises	Beijing Enterprise Management Modernization Innovation Achievement Review Committee, Beijing Enterprise Union, and Beijing Entrepreneurs Association	36th Beijing Enterprise Management Modernization Innovation Achievement – Second Prize
Cold-R Co.	An Enterprise Intelligent Planning and Scheduling System Based on Data Element Applications	Beijing Municipal Administration and Data Bureau	"Data Element X" Competition Beijing Division (Industrial Manufacturing Track) – Third Prize
Cold-R Co.	Integrate Diverse Data to Empower Intelligent Quality Control in The Steel Industry	Beijing Municipal Administration and Data Bureau	"Data Element X" Competition Beijing Division (Industrial Manufacturing Track) – Excellence Award



Case: Intelligent Centralized Control Construction for the 4300mm Plate Production Line

Jingtang Co. has built a digital empowerment platform for plates production line based on an industrial internet architecture. This platform, driven by digitalization, integrates big data, artificial intelligence, and traditional mechanistic models to advance the construction of the intelligent 4300mm plate production line. It enables lean production management, regional smart control, and efficient process collaboration. Notably, the "Plate AI Intelligent Behavior Decision Contour Instrument" achieved recognition as a typical application case of artificial intelligence empowering new industrialization by the Ministry of Industry and Information Technology.



The intelligent centralized control system for the 4300mm plate production line covers control and scheduling across multiple zones, including the reheating furnace area, rolling area, laminar cooling area, straightening area, finish shearing area, and cold straightening machine area. This system effectively addresses issues such as dispersed workstations, low operational efficiency, excessive manual intervention, and production instability. It enables fully automated steel loading and unloading in the reheating furnace area and fully automated rolling in the rolling mill area, with real-time tracking of the rolling mill's quality detection equipment and monitoring data from quality inspection instruments. This facilitates highly efficient coordination in plate production, improves product quality, and reduces production costs.

Automation level achieves over **95%**
 The yield rate increases by **0.11** percentage points

Case: Self-Developed Shougang Zhixin Digital Performance Management (DPM) Platform

To accelerate the company's digital transformation, the company independently developed the Shougang Zhixin Digital Performance Management (DPM) Platform, organically integrating performance management processes with digital tools. The platform incorporates 53 visual analysis reports and dashboards, successfully resolving over a thousand closed-loop management issues. In the No. 1 operating area, where the DPM Platform is deeply integrated with business operations, all key operational and production indicators have been exceeded, resulting in a 7.3% increase in production efficiency compared to the same period of last year. Additionally, the standardized improvement module originated in the No. 1 operating area has fully mobilized employee engagement across various tasks, providing robust support for enhancing production efficiency, improving technical quality, ensuring equipment stability, and reducing costs.

Case: Intelligent Ladle Hot Repair Platform Based on Multi-Robot Collaboration

Jingtang Co. has developed an intelligent ladle hot repair platform based on multi-robot collaboration, integrating technologies such as machine vision, remote centralized control, and 3D modeling to innovate a cooperative operating model for ladle hot repair. By coordinating 5 intelligent robots and 1 cantilever robot, the platform addresses issues of high manual dependency and harsh working conditions (high temperature, intense thermal radiation, and significant dust levels). It enables innovative operations such as automatic nozzle dismantling, sand addition, and slag mopping. The robots achieve a detection precision of $\pm 5\text{mm}$, and the system's operational success rate exceeds 96%, revolutionizing traditional work models and mitigating operational risks. This application has been recognized as a typical case of artificial intelligence empowering new industrialization by the Ministry of Industry and Information Technology, and it received the Third Prize in the 4th Steel Industry Intelligent Manufacturing Innovation Competition, providing a benchmark for digital and intelligent empowerment in the steel industry.



Case: Real-Time Galvanizing Process Control Using Artificial Intelligence Neural Networks

Zinc layer thickness is a key quality control indicator for automotive sheets. Cold-R Co. has applied artificial intelligence neural networks to real-time control of the galvanizing process, successfully overcoming issues such as lagging behind in zinc layer thickness adjustment, poor stability of control, and lateral unevenness. During the project, Cold-R Co. organized training sessions on BP neural network algorithms, curve regression algorithms, neural network algorithms, isolation forest algorithms, and zinc layer thickness incremental learning algorithms to further cultivate digital talent.

By utilizing a deep learning neural network model, the system instantly generates optimal control parameters for the air knife, enabling feedforward control during non-steady production. When switching production specifications, it can adjust control parameters within 10ms to the primary air knife control system, preventing disturbances caused by manual intervention and achieving high-precision control of the zinc layer thickness. Precise fine-tuning of parameters such as the distance on both sides of the air knife and the position of the correcting rolls helps to equalize the lateral distribution of zinc layer thickness.

Following implementation, the exceedance rate for the target zinc coating thickness deviation within 3g has been reduced by 75%, and the lateral deviation in zinc layer thickness was lowered by 52%, significantly enhancing product quality and providing an excellent example of how artificial intelligence can empower quality improvement in the industry.

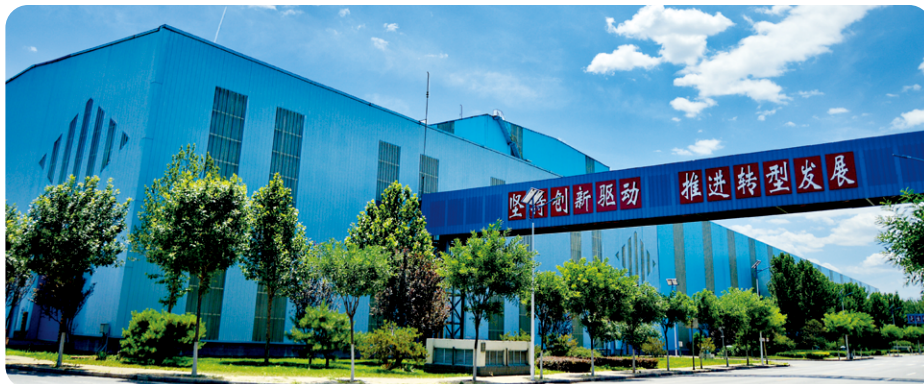
➤ Digital Talent Development

Shougang Co. pays high attention to building a digital-intelligent talent team by fostering an open and shared data culture. The company has established digital talent promotion channels, incentive mechanisms, and multi-level, multi-form training programs, thereby creating a strong talent pool for digital transformation.

The company encourages employees to dig deep into the value of data by setting up communication platforms and utilizing data visualization analysis tools for multidimensional perspectives, and exploratory independent analysis. This effort has cultivated an environment where "everyone uses data, and everyone understands data". Through the continuous organization of data analysis competitions, benchmarking exchanges, and digital special-topic training sessions over multiple years, the company has nurtured digital talent and developed a series of replicable and scalable data analysis application cases.

In 2024, the company organized 25 digital training sessions, covering over 2000 participants. Specifically, Qiangang Co. provided training on FineBI, JMP, and system applications. Jingtang Co. held Python training and advanced FineBI sessions. Cold-R Co. organized specialized training to empower employees with core digital skills. Additionally, Cold-R Co. innovatively launched an e-learning platform - the Digital Cloud Classroom APP - which covers fundamental knowledge of digital transformation, industrial internet, digital twins, machine vision, and more, along with competency tests to effectively evaluate learning outcomes, thereby accelerating the development of a talent team equipped with "data thinking + application skills".

Looking ahead to 2025, Shougang Co. will continue to implement its Digital Transformation Action Plan, comprehensively enhancing foundational technical capabilities, manufacturing collaboration, operational control, and management service abilities. The company will advance digital transformation across all processes and business domains, fully establishing a new paradigm of intelligent manufacturing characterized by "automated operations, intelligent equipment, digital control, and smart decision-making".



Case: Third "Digital Intelligence Innovation, Empowering the Future" Data Analysis Competition

Shougang Co. has successfully hosted three competitions of its data visualization and analysis. By organizing this competition, the company has established a platform for learning and communication between operational and technical staff, encouraging employees to utilize advanced data analysis techniques to solve practical issues in production, management, and marketing. This initiative has cultivated a large pool of interdisciplinary talent who understand both business and data analysis applications, resulting in a series of data analysis projects with Shougang Co. characteristics. These projects have set benchmarks for enterprise data applications and provided strong support for business decision-making.

The competition features two tracks - Business Empowerment and Management Efficiency - covering a wide range of business areas from production optimization and quality control to market forecasting and cost management. A total of 161 works were received, a significant increase from 26 works in the first, demonstrating remarkable success in digital talent development.



Case: Jingtang Co. Conducting Python Training and Practical Technical Guidance

In order to cultivate digital-intelligent talent and accelerate digital and intelligent transformation, Jingtang Co. conducted Python training and hands-on technical guidance from March to May 2024. Through the training, the company deepened employees' data application capabilities to support process model research, nurturing a group of interdisciplinary talents who understand both the business and development aspects. This initiative accelerated the building of a talent team equipped with "data thinking + application skills". During the training period, a total of 21 Python data analysis application projects were produced.



Special Topic

Digital Transformation of Cold-R Co.

In 2024, Cold-R Co. focused on seven key areas: intelligent quality management, smart production planning, process control modeling, digitalized equipment maintenance, intelligent warehousing and logistics, refined energy and environmental protection management, and reducing manpower in high-risk positions through unmanned operations. Leveraging advanced technologies such as 5G, big data, and AI, Cold-R Co. integrated industry-specific mechanistic models with digital technologies and deployed 67 digital application scenarios on a large scale. This extensive interconnectivity across upstream and downstream operations has successfully addressed key quality issues raised by major customers, improved end-to-end process control and target-setting precision, and broken through critical bottlenecks in quality control and production yield.

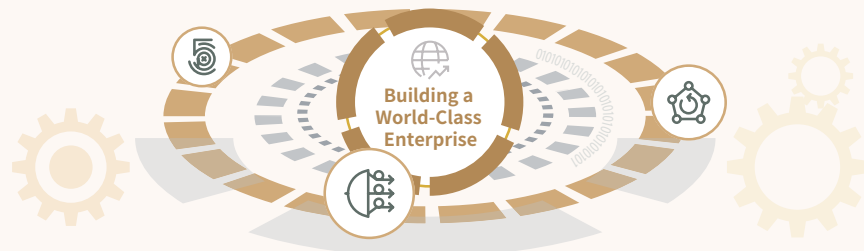


5 Key Areas

Premium Quality, Lean Production, Superior Craftsmanship, Meticulous Readiness, and Sincere Commitment

9 Systems

Quality Management, Production Operations, Equipment Management, Warehousing and Logistics, Energy and Environmental Protection, Customer Service, Production Planning, Safety Management, and Performance Management



6 Supporting Systems

Organizational Structure, Transformation Mechanism, Training System, Advanced Industrial Internet Architecture, Comprehensive Data Governance System, and Diversified Technology Ecosystem

Cold-R Co. has been awarded as a National-level Smart Manufacturing Benchmark Enterprise and was selected as one of the first batch of Excellence Level Smart Factory by the MIIT. In January 2025, the World Economic Forum (WEF) announced the 13th batch of Global "Lighthouse Factories"⁴, and Cold-R Co. became the third steel enterprise in China and the 7th globally to be named a "Lighthouse Factory".

Cold-R Co. continuously advances digital transformation and Lighthouse Factory construction around the "1596" framework.

Production line efficiency has improved by

21%

Product defect rates have dropped by

35%



The production volume of high-end products has increased by

36%

Customer complaints have decreased by

55%

With talent as the foundation, enhancing the digital competency of all employees.

To ensure that talent underpins its digital transformation, Cold-R Co. has established a Digital Transformation Office to drive the deployment of digital application scenarios. Cold-R Co. pays attention to cultivating digital talent by creating promotion channels for digital professionals and tailoring evaluation and incentive mechanisms to favor digital experts, thereby encouraging business staff to expand their digital skills. Initiatives such as internal FineBI and Python training sessions, on-site case sharing meetings, the development of a digital shift handover system, and the use of the Digital Performance Management (DPM) Platform for scheduling meetings - coupled with regular awards for outstanding product managers and case examples - have fostered a robust digital culture that enhances employees' digital capabilities and idea. In 2024, a digital transformation satisfaction survey at Cold-R Co. revealed a 13 percentage point improvement compared to 2020.

⁴ Lighthouse Factory: The "Lighthouse Factory" project is a selection initiative carried out in cooperation between the World Economic Forum in Davos and the consulting firm McKinsey. Hailed as "the world's most advanced factory", it serves as a model of digital manufacturing and Globalization 4.0, representing the pinnacle of intelligent manufacturing and digitalization in today's global manufacturing landscape.

Special Topic

Digital Transformation of Cold-R Co. (Continued)

With technology as the backbone, ensuring the successful implementation of digital application scenarios.

Cold-R Co. has built a cloud-edge-end collaborative industrial internet architecture that leverages more than a dozen advanced Industry 4.0 technologies - including 5G, big data, AI, and robotics - to achieve seamless interconnectivity across the value chain and effectively support digital application scenarios. For example, 5G technology empowers smart warehousing, RGV transportation, and equipment control by providing rapid and stable data transmission, thus facilitating intelligent scenario construction. AI and big data technologies underpin the development of process control models such as intelligent sheet shape control, zinc layer thickness preset and closed-loop control, leveling machine models, flatness machine models, and alloying models - thereby enabling intelligent process control. Additionally, AI visual recognition technology enables the production line to rapidly detect non-steady conditions and perform quick quality inspections of galvanized coil surfaces, significantly enhancing production line efficiency. Intelligent robot technology further reduces manpower in 3D positions and supports unmanned operations through one-touch intelligent inspection and testing, thereby improving both inherent safety and operational efficiency on the production line.

Business-oriented, enhancing core competitiveness.

Intelligent Quality Management

Cold-R Co. has implemented online real-time detection of process deviations and tracks product quality throughout the entire production process. By leveraging big data analysis models and an expert database system, Cold-R Co. traces issues and provides improvement recommendations. Notably, the company has built a lifecycle process quality knowledge graph for automotive sheets and developed CP Digital Control as well as customer-oriented quality risk prevention based on this knowledge graph.

Intelligent Production Planning

Utilizing advanced analytics to optimize production organization and planning, Cold-R Co. has developed an intelligent scheduling system and a material standard cycle control model among other production planning models, integrating big data analysis to fine-tune production processes.

Process Control Modeling

Cold-R Co. has established advanced analytical models for production processes by integrating industrial mechanisms with big data analysis to achieve automatic control setting and enhanced control accuracy. The company has developed models such as intelligent galvanizing control and closed-loop control for zinc layer thickness.

Digitalization of Equipment Maintenance

We have established an equipment digital management platform with 100% coverage of critical equipment and developed models for predictive maintenance.

Intelligent Warehouse and Logistics

Cold-R Co. has leveraged 5G technology to build an intelligent warehouse system, developed smart stack position recommendations and intelligent warehouse scheduling, and used big data models to optimize shipping plans, achieving automation and intelligence in in-plant logistics.

Refined Energy and Environmental Protection

Cold-R Co. has built an intelligent energy and environmental protection management platform to achieve precise energy statistics and analysis from ironmaking to the rolling, supporting refined energy management and developing models for rolling mill electricity consumption, among others.

Less and Unmanned in Dangerous Positions

Cold-R Co. has utilized industrial robots to enhance operational efficiency and intrinsic safety. 17 robots have been installed, a one-click intelligent inspection and testing system has been established, and scenarios such as unmanned overhead cranes and RGV intelligent transport systems have been developed.

In the future, Cold-R Co. will continue to deepen its digital transformation and lighthouse factory construction around the "1596" strategy, driving progress in developing talent, technological support, and business leading. Cold-R Co. aims to become a dazzling lighthouse for digital transformation in the steel industry, leading the steel industry into a new era of intelligent manufacturing.



Intelligent Management and Control Center



Unmanned Overhead Crane



RGV Transport Vehicle

Product quality downgrade reduced by **10%**

Production cycles reduced by **18%**

The output of galvanized automotive sheets increased by **36%**

Production losses reduced by **32%**

Material loss rate reduced by **7%**

Unplanned downtime reduced by **37%**

Product external delivery efficiency improved by **15%**

The proportion of valley electricity usage increased by **7** percentage points

Pollutant emissions compliance reached **100%**

Labor productivity increased by **11%**

Product Quality and Customer Service

➤ Product Quality

Shougang Co. adheres to the concept of "Quality Strengthens Enterprises", with market-oriented, customer-centered, and supported by integrated production, sales, and research efforts. Following the quality policy of "Committed to Product Excellence and Pursuing Customer Satisfaction", the company reinforces its quality system and strives to enhance both product quality and service, thereby building a comprehensive competitive edge through a "manufacturing + service" model. Through strict quality control processes and advanced production technology, the company provides safe, high-quality steel products to various industries, earning widespread trust and acclaim.

Quality Management System

Shougang Co. places great importance on product quality and safety, with the General Manager serving as the first person responsible for ensuring product and service quality and safety. In strict compliance with the *Product Quality Law of the People's Republic of China* and other relevant laws and regulations, the company has established 33 systems - including the *Quality System Management System*, *Product Quality Incident Management Measures*, and *Product Quality Assessment Management Measures* - covering aspects such as the quality management system, product consistency management, quality incident management, and usage safety management, thereby comprehensively enhancing its product quality control capabilities. In 2024, the company did not experience any major safety incidents or significant product quality liability issues.

Key Activities	Relevant Systems
Quality Planning	<i>Quality Cost Control and Quality Improvement Management Promotion Plan, Standardization Management Regulations, etc.</i>
Quality Control	<i>Process Design Management Measures, Online Quality Evaluation Management Measures, Quality Objection Management Measures, etc.</i>
Quality Guarantee	<i>Quality System Management System, Third-Party Certification Management Regulations for Steel Products, etc.</i>
Quality Improvement	<i>Lean Project Management Regulations, Quality Activity Management Measures, etc.</i>

Quality Management System. The company has established a quality management system that complies with ISO 9001 and IATF 16949 standards. We ensure product quality through early-stage product quality planning, production approval procedure, control plans, and standardized operations. In addition, regular supervision, internal audits, and external audits are conducted to maintain the integrity and effectiveness of the quality management system.

Quality Management Model. The company has developed an integrated quality management model driven by dual forces - "comprehensive service + intelligent management and control" - with a focus on key product lines, quality breakthroughs, fundamental management, data empowerment, and equipment/process aspects.

Product Consistency Management. From selecting raw material suppliers and controlling mass production to managing critical processes and key control points, the company strictly implements consistency management to ensure stable and reliable mass-produced products.

Quality Incident Management. Adhering strictly to standards and customer requirements, the company has established management protocols for each product and production process. Production is immediately halted for any product that fails to meet quality standards.

On-site Customer Management. The company implements an on-site customer system to supervise the entire production process, ensuring that product quality and safety meet customer expectations.

Enhanced Quality Assessment. The company has established a comprehensive quality assessment indicator system, set annual quality targets, and implemented performance evaluations based on monthly indicator achievements. For production line quality issues, detailed quality incident assessment measures have been established, refining various incident levels and corresponding evaluation measures.

In 2024, Shougang Co. obtained many domestic and international certification for its products, exceeding its certification plan. These include such as the EU CE, UK UKCA, Thailand TISI, US SCS, and classification society certifications (BV, DNV, CCS, LR), as well as ultra-high strength marine steel certifications. This achievement replaced 19 imported finished products and led to upgrades in 50 products and standards.

Shougang Co.

Hot rolled sheets and coils for automobile wheels, high corrosion-resistant pre-painted galvanized steel coils for the livestock industry, TFS MR T-4 CA chrome-plate for easy-opening lids, among others, were honored with the "Golden Cup Excellent Product Award" by the China Iron and Steel Association

Shougang Co.

3 QC achievements received the First Prize for Excellent Management Achievements in the Hebei Metallurgical System.

Cold-R Co.

Awarded the "3rd Beijing Municipal Government Quality Management Nomination Award"

Shougang Zhixin

Selected for the leading enterprise cultivation pool in Advancing the Construction of a Quality-Driven Nation
Recognized as a leading enterprise in Advancing the Construction of a Quality-Driven Nation

Digital empowerment of quality management, multiple awards were earned in 2024

Awards Recipients	Project	Awarding Authority	Awards
Shougang Co.	Key Technological Innovations and Applications in Intelligent Quality Management for Steel Process Manufacturing	China Iron and Steel Association, Chinese Society for Metals	Third Prize of the Metallurgical Science and Technology Award
Shougang Zhixin	Construction and Implementation of a Quality Interaction Analysis System for Large-scale Steel Enterprises	Hebei Quality Culture Association	Second Prize of the 7th Hebei Quality Innovation and Quality Improvement Achievement Award
Shougang Zhixin	Digital Innovation in Quality Management for Key Business Areas in the Electrical Steel Industry Chain	China Iron and Steel Association	First Prize of the 22nd Metallurgical Enterprise Management Modernization Innovation Achievement Award

In response to the *Guiding Opinions on Promoting the High-Quality Development of the Steel Industry* jointly issued by the Ministry of Industry and Information Technology, the National Development and Reform Commission, and the Ministry of Ecology and Environment, the company actively accelerates the upgrade of its product quality. We promote quality grading and classification evaluation across multiple fields - including aerospace, shipbuilding and marine engineering equipment, energy equipment, advanced rail transit and automobiles, as well as high-performance machinery - to enhance the stability and consistency of product quality. In 2024, the company participated in the formulation of group standards such as *Quality Gradation and Evaluation Methods for Hot-Rolled Wide Strips for Line Pipe of Petroleum and Natural Gas* and *Quality Gradation and Evaluation for Hot Rolled Steel Plates and Strips for Welding Gas Cylinders*, contributing to the enhancement of industry quality control and standardized evaluation levels.

Product Quality Risks Control

Shougang Co. manages quality risks throughout the entire process - from product quality planning, quality control, and quality guarantee to quality improvement.

Product Quality Planning. The company has built an industrial big data platform that digitizes product quality control rules. By employing advanced technologies such as online detection, machine learning, and image recognition, 100% machine-driven decision-making replaces manual decisions-making to achieve comprehensive, end-to-end product quality management. Leveraging big data analysis and customer feedback, the company continuously optimizes product dimensions, curves, profile, appearance, and performance standards. To address harmful substances in products and packaging materials, we have established free chromium control indicators, conducted batch sampling inspections, and regularly performed third-party testing to ensure product quality and safety.

Risk Factors	National and Industry Standards	Internal Control Indicators	Monitoring Methods
Residual harmful substances	Hexavalent Chromium < 1000 ppm	Hexavalent Chromium < 200 ppm	Customer random sampling, third-party testing
Product shelf life	≤ 6 months	≤ 6 months	Technical agreements, quality warranties
Environmental friendliness of packaging materials	Hexavalent Chromium < 1000 ppm	Hexavalent Chromium < 1000 ppm	Regular third-party testing

Product Quality Control. The company has developed a “one-click” quality process management system that integrates over 1,000 process parameters across 49 processes - including steelmaking and hot rolling - thereby

achieving full-process tracking and data analysis. In addition, product quality monitoring and early-warning functions have been developed to monitor real-time production data (such as temperature, dimensions, and profile) and to issue timely alerts, thereby enhancing process oversight and preemptive response capabilities.

Product Quality Assurance. For strategic products, the company conducts third-party certification audits and sets process performance indicators for regulatory monitoring. Through internal audits and continuous improvement measures, the performance of the product quality management system is enhanced. An independent quality inspection department - separate from the production department - has been established, and its laboratory has obtained CNAS certification and is subject to both internal and external supervision. Furthermore, a cloud-edge data architecture has been constructed to establish a full-process quality control platform.

Product Self-Inspection and Self-Control. Based on the characteristics of products and customer requirements regarding the control of environmentally harmful substances (such as those stipulated by RoHS/REACH) in accordance with the *Measures for the Administration of Hazardous Substances*, the company implements process supervision and outsourced testing from raw materials through production to packaging. Customer and related parties directives are communicated step-by-step to upstream suppliers. All externally delivered products undergo testing by qualified third-party organizations, which issue inspection reports. Additionally, third-party testing is continuously updated in line with the high-risk substance list to ensure ongoing product quality and safety.

Product Quality Improvement. The company continuously focuses on its “Double Ten” key projects to address internal quality bottlenecks of products and customer concerns by setting challenging targets. Core business personnel are selected to form project teams, with performance indicators monitored weekly through dashboard meetings and project progress reported monthly in quality meetings. A three-tier process inspection mechanism has been established, wherein weekly inspections of process control plans, procedures, and related documents are conducted and summarized in weekly inspection reports to ensure accurate operational implementation. Adopting lean methods such as Six Sigma, QC management groups, and the Amoeba management model, the company has built a continuous improvement and innovation platform that creates a culture of quality enhancement across all levels.

In 2024, the proportion of products produced that did not meet customer contract requirements decreased by 1.28% year-on-year, quality dispute compensations declined by 5.6% year-on-year, and the product qualified rate improved by 0.01% year-on-year, these indicators all better than the annual targets.

Proportion of products produced that did not meet customer contract requirements decreased by **1.28%** YoY

Quality dispute compensations declined by **5.6%** YoY

Product qualified rate improved by **0.01%** YoY

Case: Knowledge Graph-Based Quality Risks Prevention System of Cold-R Co.

Cold-R Co. has innovatively developed the industry's first quality knowledge graph for automotive sheets covering the full lifecycle, which is the first knowledge graph in the steel sector.

Measures

Integrating a risk-oriented thinking into quality management to establish a quality risks control model;

Leveraging diverse data sources and strengthening data-driven initiatives to fully harness the power of key data variables and knowledge graphs, along with AI technologies, and exploring over 20 application scenarios with more than 160 functional modules.

Effects

Achieving material performance optimization centered on customer needs;

Remodeling quality culture by shifting from a "post-analysis + in-process monitoring" model to a "prevention + in-process adjustment" quality control model.

Case: Digital and Intelligent Empowerment for Quality Improvement

Cold-R Co. has established a full-process online system for blocking suspicious materials and analyzing profile. This system monitors and analyzes the profile in real time across various processes such as hot rolling, pickling, and galvanizing. Based on preset anomaly detection rules, we can stop production when deviations are detected, enabling early prediction and warning of profile defects. This provides effective assurance for timely measures to reduce the incidence of profile nonconformities.

In addition, Cold-R Co. has developed a full-process profile quality diagnosis and stopping system, which has enabled an intelligent upgrading in the quality control of slab and optimized the criteria for hot rolling coil profile determination. Through precise analysis and control of slab quality, the occurrence of profile defects caused by slab quality fluctuations has been effectively reduced, thereby enhancing product quality and production efficiency.

Quality Culture

Shougang Co. regularly hosts Quality Expert Seminars, Lean Quality Special Topic Public Classes, and Quality Special Topic Training sessions covering topics such as the quality management system, quality tools, and quality management knowledge. These initiatives continuously strengthen employees' awareness of quality risks and responsibilities. The company also organizes a series of Quality Month activities, including quality enhancement exchanges, idea solicitation campaigns, and quality essay contests, as well as the creation of a quality culture corridor, all aimed at reinforcing company-wide quality consciousness. Furthermore, quality management improvement projects are organized, and outstanding teams and individuals in quality management are recognized to comprehensively and continuously consolidate the company's quality management practices.

Case: Conducting the Lean Quality Special Topic Public Class

In September 2024, Shougang Co. held a Lean Quality Special Topic Public Class, attended by more than 60 participants including company leaders, heads of professional departments, unit managers at various levels, and lean quality management experts.

The company adheres to a problem-oriented approach to comprehensively advance lean quality management, deepening quality potential and building a strong quality brand, while continuously consolidating its advantages in products, quality, cost, service, and technology. In the future, the company will further solidify the philosophy that "quality is life" and elevate quality initiatives to an even more prominent position.



Case: Conducting a Series of Quality Lean Tools Training

From March to July 2024, Shougang Co. conducted a comprehensive series of quality lean tools training sessions, covering courses such as MSA, FMEA, basic Six Sigma, and JMP data analysis, with 140 participant engagements.

Over the past 15 years, the company has consistently focused on continuous improvement by using quality tools like Six Sigma as a foundation. By continuously optimizing teaching methods and deeply integrating quality tools with actual work processes, Shougang Co. has empowered its employees to master the core principles of these tools and tackle challenges in quality management.

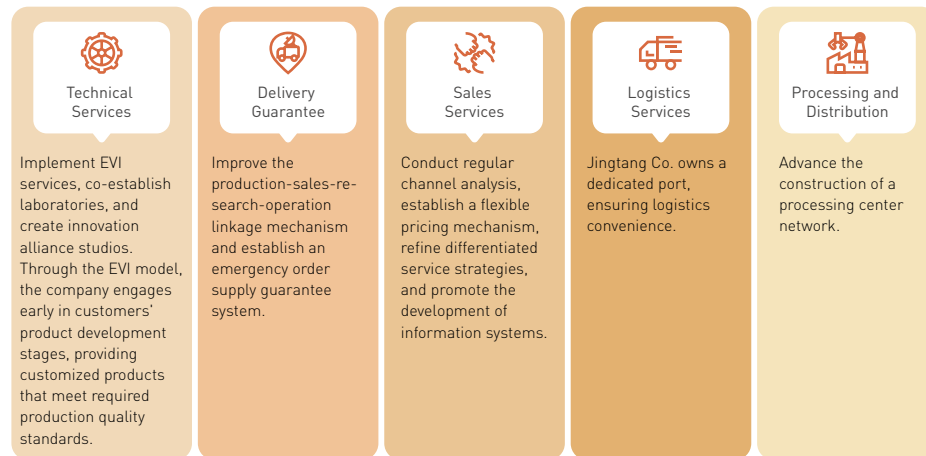


Customer Service

Shougang Co. is user-centered and guided by meeting the needs of users. By leveraging the promotion of its intelligent marketing platform and focusing on enhancing the user experience, the company continuously refines its customer service system to provide one-stop services and differentiated, precise “one user, one strategy” solutions, thereby enhancing the quality of customer service.

Customer Service System

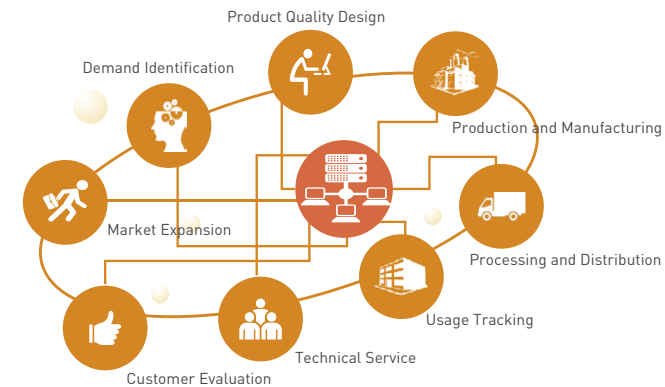
The company strictly adheres to legal and regulatory requirements and has established 12 management systems, including the *Customer Service Management Measures*, *Steel Product User Satisfaction Management System*, *Product Quality Dispute Management*, and Online Trading Platform Customer Complaint Management System, among others. The company continuously optimizes service processes, improves the customer service management evaluation mechanism, and standardizes the customer complaint and handling processes to enhance both customer service capabilities and service quality.



Intelligent Marketing Platform. Shougang Co. continuously optimizes the interactive interface of its intelligent marketing platform, providing customers with convenient features such as order tracking, warranty certificate verification, and request submission. The company has built an efficient “Shougang-Customer” interconnected EDI platform, enabling precise business matching and shared resource flow. This platform meets customers' personalized interaction needs for various business data, including sales contracts, product quality, and logistics dispatch information.

Three-Tier Service System. The company integrates production, sales, research, and technical service resources. The Marketing Center has established a Customer and Product Service Department, continuously refining a three-tier service system based on classification, regional segmentation, and hierarchical service levels to provide comprehensive customer solutions. Differentiated services are also offered, such as a dedicated key account manager team for automotive sheets, which provides 24/7 on-site support to ensure personal service for major clients.

Customer Request Management Mechanism and Tiered Response System. Shougang Co. has established a customer feedback mechanism, a closed-loop response process, and a three-tier technical service response system to continuously optimize the collection, handling, and response to customer requests. The company has enhanced its appeal collection pathways by improving channels for collecting customer demands and utilizing multiple communication platforms, including weekly customer service meetings, base quality meetings, base production-sales-research-operation meetings, monthly customer service meetings, and product promotion meetings, to promptly collect client issues and requirements. Customer complaints are managed through a tiered classification system to ensure rapid issue detection and response. Additionally, a “Problem List-Supervised Resolution-Internal Problem-Solving” collaboration mechanism has been implemented to effectively address customers' actual needs, achieving 100% closed-loop management of customer requests.



For quality disputes, the company has established a rapid response mechanism. Upon receiving customer complaints or quality feedback, the service team immediately visits the site to inspect product issues, leading the resolution process to ensure a timely response. Moreover, root cause analysis and corrective measures are conducted, with feedback provided to relevant departments and units to prevent the recurrence of similar quality disputes.

In 2024, aiming at the pain points of customers' needs, the company enhanced personalized products production capabilities based on demands related to new product aesthetics, functionality,

user experience, and quality guarantee. By expanding green home appliance manufacturing, developing scenario-based products, and scaling up high-end home appliance production, Shougang Co. has deepened its mutually beneficial collaboration model with customers, gaining widespread recognition and customer preference.

Shougang Co.

"Standardized Management Innovation and Practice Oriented Toward Precise Customer Demand Control" won the First Prize at the 22nd (2024) Metallurgical Enterprise Management Modernization Innovation Achievement Award

Customer Satisfaction Survey and Management. In accordance with the company's *Steel Product User Satisfaction Management System*, satisfaction management modules have been developed within both the production-sales system and the intelligent marketing system. A combination of online and offline methods is used to conduct regular customer satisfaction surveys. The survey covers multiple dimensions, including overall impression, product quality, supply capabilities, service quality, and pricing, and is conducted with a differentiated evaluation approach. Additionally, the company collects customer opinions and suggestions extensively through various channels such as phone calls, faxes, emails, trade fairs, and on-site visits. For concerns raised in satisfaction surveys, each issue is verified in detail, and the production, sales, and R&D teams collaborate to ensure a rapid response, guaranteeing effective problem resolution. After corrective actions are completed, a multi-dimensional follow-up mechanism is implemented, forming a closed-loop satisfaction survey management process to continuously enhance the customer experience.



In 2024, Customer satisfaction score reached **98.80**

Customer Communication

Shougang Co. carries out all-round and multi-dimensional customer interaction and communication. Through video calls and face-to-face meetings, the company organizes "Closer to Customers" initiatives to gain in-depth insights into issues encountered by clients during product usage, ensuring precise understanding of their needs and providing attentive service. Additionally, by hosting Shougang Days and joint exhibitions at customer sites, the company strengthens technical cooperation in areas such as new materials, new technologies, and green low-carbon solutions. In 2024, Shougang Co. conducted 5103 customer visits and interactions and held 2206 technical exchanges. We also facilitated technical exchanges with 5 key customers, including Toyota and SERES (Sailisi New Energy Vehicle Company), and organized "Shougang Day" events at Dongfeng Nissan, Chery, and Toyota.



**Recognition Continues to Increase for Our "Manufacturing + Service"
Received a Total of 38 Customer Awards**

"Cooperation Contribution Award" as the only steel enterprise recognized by China National Heavy Duty Truck Group

"Outstanding Supplier" award from GAC Honda and Nantong CIMC (China International Marine Containers Group)

"Excellence Supplier" and "Best Product Innovation Award" from Geely Auto

"Best Partner Award" and "Outstanding On-Site Service Team Award" from BYD Auto

"Excellence Cooperation and Synergy Award" and "Best Technical Service Award" from Chery Auto

"Best Service Award" from Dongfeng Honda

"Win-Win Cooperation Award" from Foton Motor

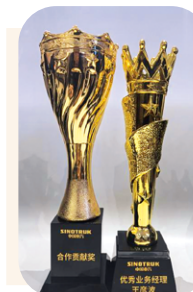
"Outstanding New Supplier Award" from XPeng Motors

"Strategic Partner Award" from Gestamp Automotive Components

"Excellence Partner Award" from Haier Group

"Best Cooperation Award" from Mubea Automotive Components (Taicang) Co., Ltd.,

"Annual Value Award" from Schaeffler



Awarded the "Cooperation Contribution Award" by China National Heavy Duty Truck Group (Sinotruk)

At the 2025 Sinotruk Annual Supply Chain Conference, Shougang Co. was honored with the "Cooperation Contribution Award" for its outstanding products, services, and supply chain innovation practices. Shougang Co. is the only steel enterprise in the sheet to receive this prestigious recognition.

Case: The 8th Nissan "Shougang Day" Event

In November, 2024, Shougang Co. hosted the 8th Nissan "Shougang Day" event. Leaders and experts from Nissan Motor, Dongfeng Nissan, and Nissan Trading attended the event. During the discussions, both parties conducted an in-depth exchange on various topics, including Shougang's cold-rolled and pickled products for automotive applications, electrical steel products for new energy vehicles, Shougang's low-carbon development progress, and global cooperation strategies. A consensus was reached on enhancing collaboration for new vehicle models and new materials.



The Nissan "Shougang Day" event serves as a dedicated cooperation platform jointly established by Shougang and Nissan to deepen their global collaboration. Since the first event in 2017, Shougang Co. has continuously upheld its "manufacturing + service" philosophy, consistently improving product quality and customer service. Over the years, the partnership has grown stronger, delivering new cooperative achievements.

Case: Chery-Shougang Technical Exchange Day

In January, 2024, Shougang Co. hosted the Chery-Shougang Technical Exchange Day event in Wuhu, Anhui. Both parties engaged in in-depth discussions on expanding international markets, developing low-carbon green steel materials, and providing comprehensive vehicle material solutions. Chery and Shougang Co. will strengthen their collaboration in green development, technological innovation, and ESG initiatives, working together to enhance their reputations in high-end manufacturing. This partnership aims to set a benchmark for cooperation between the automotive and steel industries.



Case: Awarded the "Win-Win Cooperation Award" by Foton Motor

At the 2025 Foton Motor Global Partner Conference, Shougang Co. was once again awarded the "Win-Win Cooperation Award". The company has received this honor for multiple consecutive years and remains the only steel enterprise to be recognized.

To meet the environmental requirements of overseas markets, Foton Motor approached Shougang Co. in May 2024, requesting solutions for "green steel" and the upgrading of cold-rolled galvanized coils. The company immediately engaged in discussions, leveraged its integrated production-sales-research capabilities, and quickly formed a joint task force to provide tailored solutions. This proactive approach was highly praised by Foton Motor.

Since the beginning of their partnership in 2009, Shougang Co. and Foton Motor have maintained close collaboration, continuously supplying cutting-edge technical products and highly efficient, professional services.



Case: User Technical Seminar

In November, 2024, the Shougang New Energy Vehicle Soft Magnetic Material User Technical Seminar was held in Suzhou. During the meeting, global debut products were officially introduced, along with several new technologies, including self-bonding coatings.



Responsible Marketing

Shougang Co. consistently adheres to responsible marketing and strict advertising content control, fully complying with the *Advertising Law of the People's Republic of China* and the *Consumer Rights Protection Law of the People's Republic of China*. The company reinforces responsible marketing practices by strengthening compliance management in key business areas such as pricing policies, carrier admission, and quality dispute risks. In 2024, no violations related to product or service information, labeling, or marketing activities occurred.

Looking ahead, the company will continue to enhance its three-tier service system, improve the "Problem List-Supervised Resolution-Internal Task Force" collaborative mechanism, further improving service standards and quality, and enhancing customer satisfaction.

Supply Chain Security

Shougang Co. is committed to building a resilient and secure supply chain by integrating the "Four-Integration-One-Body"⁵ into its procurement compliance management. This approach enhances efficiency, reduces costs, and strengthens compliance management. Upholding the concept of green and low-carbon development, the company prioritizes selection of suppliers that meet ESG standards and advances green and low-carbon supply chain management to contribute to the realization of the "Dual Carbon" goals. Additionally, Shougang Co. emphasizes smart and transparent procurement, ensuring process traceability through digitalization while fostering stable and transparent partnerships. The company will continue to promote the construction of a secure supply chain, driving sustainable development within the steel industry ecosystem.

➤ Supplier Management

In accordance with the *Procurement Supplier Management Measures*, the company conducts supplier admission, audits, evaluations, and tiered management. When necessary, on-site inspections are performed to identify ESG risks in various stages of the supply chain. In 2024, a total of 18 second-party audits were conducted, 151 new suppliers were admitted, and all ESG project assessments were successfully passed. As of the end of the reporting period, Shougang Co. had a total of 3493 suppliers, all located within mainland China. During the reporting period, 1916 suppliers were evaluated, with 28.12% rated as A-grade suppliers, 44.77% as B-grade, and 27.06% as C-grade. In 2024, Shougang Co. also conducted low-carbon performance evaluations of its suppliers, further reinforcing low-carbon management practices among suppliers.

⁵ Four Transformations: a standardized, digitized, and institutionalized multi-site integrated procurement management system.



Basic Conditions for Supplier Admission



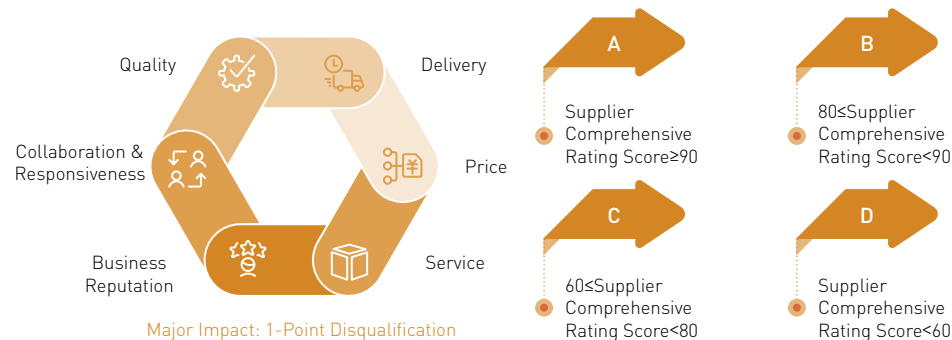
Supplier Audit Content



Evaluation Criteria Based on Procurement Material Characteristics

Quality	Collaboration Response	Business Reputation	Service	Price	Delivery	Significant Impact
Quality Pass Rate Quality Dispute Items	Quotation Response Rate Technical Breakthroughs Information Sharing	Operating with Integrity Legal Compliance Holding Environmental, Health, and Quality System Certifications	After-Sales Satisfaction Innovation Low-Carbon Development	Price Reasonability Price Competitiveness	On-Time Order Delivery Rate Contract Fulfillment	Serious Legal Violations Affecting Production Conflict Minerals Child Labor Non-Compliant Business Practices

Supplier Evaluation Criteria and Assessment Rules



To address compliance risks arising from non-standard procurement operations, the company has formulated the *Procurement Method Management System*.

Established a Procurement Standardization Promotion Committee, forming a "top-down" and "cross-departmental coordination" management structure.

Developed a comprehensive plan, clarified departmental responsibilities, and refined task implementation through group coordination.

Formulated a procurement full-process compliance management system, integrating standardization, normalization, digitalization, and institutionalization as its core principles.

Created a work progress timeline, held regular promotion meetings, and laid a solid foundation for advancing procurement standardization.

Supplier ESG Management

Shougang Co. strengthens supply chain ESG risk management by fully integrating ESG considerations into supplier admission and assessment systems, enhancing ESG management efforts, and building a sustainable supply chain ecosystem with shared responsibilities. The company has signed the *Business Partner Code of Conduct Commitment Letter* with suppliers, clearly defining ESG performance standards and optimizing supplier performance evaluation methods. Strict ESG management and risk assessments are implemented throughout the supplier management process, with comprehensive evaluations of suppliers' human rights, business ethics, and environmental protection practices at the admission stage. During the reporting period, the *Business Partner Code of Conduct Commitment Letter* achieved a 100% signing rate.

Supplier Code of Conduct

In January 2024, the company officially released the *Beijing Shougang Co., Ltd. Business Code of Conduct* on its website, along with the *Business Partner Code of Conduct Commitment Letter*, aiming to comprehensively regulate corporate business conduct, uphold sustainable development principles, promote harmonious coexistence between the company, society, and the environment, and lay a solid foundation for the company's long-term growth.

Respect and Protection of Human Rights

Prohibiting discrimination and harassment, respecting fundamental labor rights, banning child labor and forced labor, and safeguarding women's rights.

Business Ethics

Conducting business with professionalism, integrity, and honesty, adhering to market competition principles, and fostering a corporate culture of transparency and ethical behavior.

Environmental Protection

Positioning green development as a core strategy, advancing energy-conservation and carbon-reduction technology innovations, minimizing environmental impact, responsibly using natural resources, safely handling chemicals, and strictly complying with biodiversity protection laws and regulations to actively promote ecological and environmental harmony.

To identify and address negative impacts or risks related to sustainable development, the company conducted a supplier questionnaire survey covering 14 key aspects. These included prohibiting unethical or illegal business practices, maintaining a fair competition environment, and ensuring that conflict minerals do not originate from armed groups in the Democratic Republic of the Congo or surrounding regions that violate human rights. In 2024, 1200 questionnaires were issued, with 1101 valid responses received. The evaluation results indicated that all surveyed suppliers met the specified requirements.

Supplier ESG Management Measures

Procurement Process Monitoring and Control. Ensure compliance with the Supplier Code of Conduct and prevent potential conflicts with ESG requirements. Contract terms require suppliers to comply with the ESG requirements outlined in the *Procurement Supplier Management Measures*.

Supplier Qualification Review. The company has established minimum ESG compliance standards, requirements: Products supplied by vendors must comply with national industrial policies and ensure the legality of production and manufacturing. Products must meet national or industry safety standards to prevent safety incidents caused by poor product quality. Suppliers must hold valid environmental compliance certificates or environmental management system certifications (such as ISO 14001), and their environmental management must meet relevant standards.

Prioritizing ESG-Compliant Suppliers. When selecting suppliers and signing contracts, suppliers with green factory certifications or those adopting sustainable transportation methods are prioritized. For example, priority is given to suppliers with better performance, such as those that have obtained green factory certifications or adopted green transportation methods.

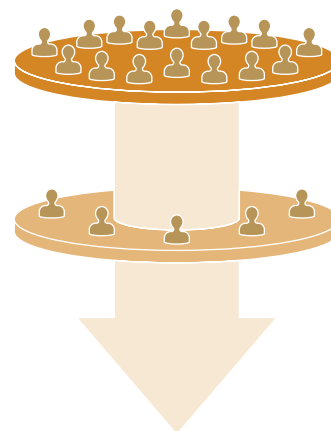
Internal Training and Communication. The company has conducted training sessions for internal stakeholders to clarify their roles and responsibilities within the supplier ESG management, helping the company achieve its ESG goals.



Screening and Evaluation of Suppliers' ESG

The company attaches importance to the construction of a green and sustainable supply chain by establishing a research and evaluation team and implementing strict admission standards to ensure suppliers meet ESG requirements. New suppliers must undergo a trial period assessment.

Supplier Selection



Screening Mechanism and Process

- Establish a research and evaluation team to conduct a comprehensive assessment of suppliers.
- Develop admission scoring standards and evidence material requirements to ensure suppliers meet business-specific and compliance standards.
- Newly admitted suppliers must undergo a minimum three-month trial period assessment to strengthen supply chain management effectiveness.

ESG Considerations

- Incorporate business ethics, labor requirements, health and safety, and environmental protection into supplier admission evaluations and conduct quantitative assessments.

Supplier Evaluation and Development

Evaluation System and Mechanism

- Implementing a monthly scoring and annual rating evaluation system covering quality, delivery, collaboration response, pricing, business reputation, service, and major impacts.
- Adopting a four-tier supplier management system (A, B, C, D levels) and adjusting cooperation strategies based on annual evaluation results.

Continuous ESG Review and Improvement

- Continuously reviewing suppliers' compliance with the Business Code of Conduct during evaluations and refraining from collaborating with suppliers who fail to meet minimum ESG requirements.
- For suppliers with poor ESG performance, we implement improvement measures and ensure that corrective actions are effectively carried out.

Supplier Empowerment and Support

- Providing ESG-related training to enhance suppliers' awareness and performance in sustainable development.
- Guiding suppliers to conduct carbon footprint accounting and certification, promoting green procurement and low-carbon production.

Conflict Minerals Management

The company has issued the *Conflict Minerals Claim* and established a strict supplier management system, requiring all suppliers to sign the *Business Partner Code of Conduct Commitment Letter*. This commitment explicitly outlines provisions related to conflict minerals: Suppliers must ensure that the tantalum, tin, tungsten, gold, cobalt, mica, and other minerals contained in their products supplied to the company do not originate from conflict regions in the Democratic Republic of the Congo (DRC) or its neighboring countries. Additionally, suppliers must not directly or indirectly provide financial support or benefit armed groups in these regions that violate human rights. To comply with this requirement, suppliers must conduct comprehensive and detailed due diligence on the origin and supply chain of the minerals they provide. Upon request, suppliers must be able to present detailed documentation of their due diligence measures and findings.

➤ Green Supply Chain

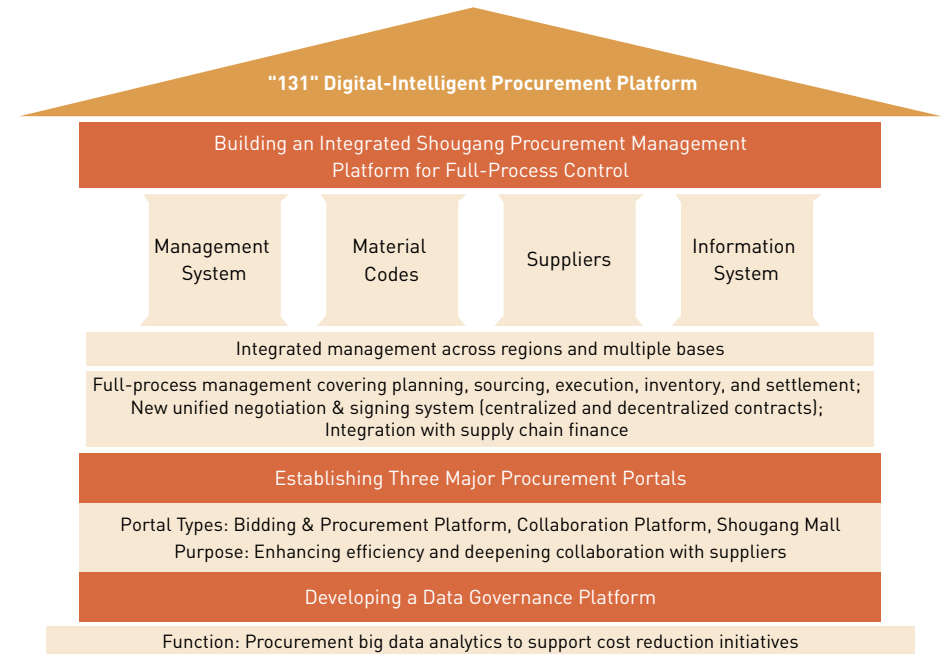
The company focuses on carbon reduction efforts for strategic products and high-carbon-emission materials by closely collaborating with leading industry enterprises. Together, we have identified two batches of key carbon reduction materials, covering 65 products supplied by 42 suppliers. To accelerate the low-carbon transformation, the company organized three supplier training conferences in April, August, and October, where Shougang Co.'s low-carbon development strategy was explained in depth. Suppliers were explicitly required to initiate carbon footprint calculations. By replacing traditional database factors with real scene data, the initiative has effectively driven a significant reduction in total material carbon emissions, achieving a decrease of up to 30%.



➤ Intelligent Supply Chain

The company takes intelligent procurement as the core, fully implementing the Sunshine Procurement Principle while continuously exploring and innovating new procurement management models. The *Shougang Procurement Risk Control Compliance Guidelines* have been developed to establish a solid theoretical foundation for digital and intelligent procurement, defining key risk control points and management standards. This initiative breaks away from traditional procurement constraints and enhances procurement risk compliance management capabilities.

On this basis, the company has developed a "131" Digital-Intelligent Procurement Platform, with a centralized procurement management platform as its core. The system establishes three external procurement portals and a data governance platform, enabling full-process digital and intelligent management of procurement operations. By leveraging cloud computing, big data, and other advanced technologies, this platform enhances procurement data analysis and creates a procurement digital brain ecosystem, leading to comprehensive procurement management improvements.



The company's bidding and procurement platform has obtained three-star and Level-3 cybersecurity certification, signifying that the platform has achieved higher efficiency, standardization, and authority in system functionality, data interaction, process management, and technical security, providing strong support for the advancement of smart procurement.

In terms of material management, the company has established a systematic, standardized, regulated, procedural, digitalized, replicable, and scalable material management system, enabling seamless integration of information and resource sharing across the supply chain, production, suppliers, and after-sales services.

➤ Equal Treatment of SMEs

During the procurement process, the company adheres to the principle of integrity, treating all suppliers fairly and ensuring equal opportunities for SMEs. The company ensures timely and full payment to SMEs, safeguarding their legitimate rights and interests. Actively responding to the requirements of the *Regulations on Ensuring Timely Payment to SMEs*, the company continuously optimizes the business environment to support the healthy development of SMEs. During the reporting period, there were no overdue payments to SMEs.

Employee Development

Shougang Co. upholds the “people-oriented, harmonious, and win-win” talent philosophy, respecting labor, workers, and their contributions. The company is committed to establishing a talent selection and utilization system centered on value creation, ensuring that value creators share the company’s achievements. By continuously enhancing the scientific and systematic management of human resources, the company strives to maximize employee well-being, fulfill employees’ aspirations for a better life, and promote the synergistic growth of personal value and corporate sustainable development.

◆ Governance

The Human Resources Department is responsible for formulating the human resource strategy and leading various initiatives related to talent introduction, development, evaluation, utilization, motivation, and retention. The Union plays a key role in democratic management, labor rights protection, and employee care, ensuring that employee rights and interests are effectively safeguarded.



To accelerate the establishment of an agile talent supply chain, the company has developed a talent management organizational structure comprising a Talent Leadership Group, Talent Work Committee, and Talent Work Office, forming a multi-level, interactive talent management system. The Talent Leadership Group, led by the Company Party Secretary as the Group Leader and the General Manager as the Deputy Leader, oversees the company’s talent strategy, sets direction, allocates resources, and guides and supervises talent-related initiatives. The Talent Work Committee is responsible for formulating talent development plans, improving talent management systems, and monitoring talent initiatives. The Talent Work Office, based in the Human Resources Department, is in charge of implementing talent development programs.

The company strictly complies with the *Labor Law of the People’s Republic of China*, the *Labor Contract Law of the People’s Republic of China*, and other relevant laws and regulations. We have formulated systems such as the *Labor Contract Management System* and continuously improve our human resources management framework to create an equal, inclusive, and diverse workplace, ensuring that employee legitimate rights and interests are fully protected.

Legal Employment	<i>Regulations on the Prohibition of Child Labor and Child Labor Remediation Control Procedures, Standards for the Protection of Female and Underage Workers, Standards for Prohibiting Discrimination, Harassment, and Abuse, “Standards for Prohibiting Forced Labor</i>
Employee Relationship Management	<i>Labor Contract Management System</i>
Employee Recruitment and Allocation	<i>Personnel Recruitment and Configuration Management System, Management System for Recruiting College Graduates, Public Competitive Recruitment Management System</i>
Employee Development	<i>Technical and Skilled Position Evaluation and Appointment Management System</i>
Employee Training	<i>Employee Education and Training Management System, Wave Program Implementation Plan, Deep Blue Training Camp Implementation Plan, Internal Trainer Training Camp Program, Vocational Competition Management System</i>
Performance Management	<i>Job Description Management System, Job Performance Appraisal Standards, Pre-Shift Meeting Management System, Employee Performance Evaluation Management System, Three-Tier Talent Management System (Management Personnel, Professional Technical Personnel, and Skilled Workers), Performance Assessment Management System, Performance Appraisal and Distribution Management System</i>
Compensation Management	<i>Compensation Management System, Job-Based Salary Management System, Comprehensive Evaluation and Long-Term Incentive Mechanism Implementation Plan for the Third Term of Middle-Level Leadership Personnel</i>
Employee Care	<i>Employee Needs Management System, Employee Satisfaction Survey Management System, Hardship Assistance Management System, Employee Health Examination Management System, Employee Health Care Plan Implementation Measures, Employee Physical Fitness Promotion Program, Direct Family Dependents and Children Medical Management System</i>

Shougang Co. respects the human rights and actively opposes any violations. The company respects employees' rights to freedom of association, union membership, and collective bargaining, maintaining an effective grievance and complaint mechanism. In 2024, 100% of employees were covered by collective bargaining agreements. The company strictly prohibits forced labor, child labor, and workplace harassment. Recruitment, employment, and promotion processes are strictly monitored, and an employee grievance channel to senior management has been established to prevent child labor, forced labor, harassment, bullying, and intimidation. In 2024, no labor law violations or non-compliant employment incidents occurred.

Shougang Co. is committed to providing equal opportunities for all employees and treats individuals of different nationalities, ethnicities, races, religions, and cultural backgrounds equally. The company respects the customs of ethnic minorities and strictly protects employee privacy. Hiring, compensation, professional education, technical training, promotion, and participation in company decision-making are based solely on objective criteria. Employees are not subject to discrimination based on gender, physical characteristics, marital status, or other personal attributes. The company conducts anti-discrimination and anti-harassment training for all employees through policy dissemination and workplace education programs. Through employee demand management, satisfaction surveys, and well-being assessments, the company conducts human rights impact evaluations to understand and mitigate potential risks in the workplace.

100% of employees were trade union members

The signing rate of labor contracts reached **100%**

➤ Strategy

Employee Recruitment

Shougang Co. adheres to the principles of compliance, fairness, and transparency in its recruitment and hiring process, strictly following established procedures for universities and social recruitment to attract and select top talent. In 2024, the company actively promoted employment and created flexible job opportunities, employing a total of 200 new hires.

In 2024,

200 New Hires

Employee Compensation and Benefits

Shougang Co. adheres to a "pay philosophy based on market salary levels, job value, skills and capabilities, and performance evaluation" and has established a comprehensive, diversified, and differentiated compensation incentive mechanism. The company designs different salary structures and compensation models for various employee categories, ensuring that salary distribution is not influenced by gender, age, or ethnicity. Compensation is structured to cover incentive, compensatory, welfare, and compliance-based allowances and subsidies, with salary incentives differentiated across short-term, annual, and long-term dimensions. Additionally, targeted individual rewards are provided to ensure employees receive fair remuneration aligned with their roles and the value they create. For mid-to-senior level management, the company has established a long-term incentive mechanism, offering tenure-based incentives and equity incentives. The tenure-based incentives follow a three-year cycle, while the restricted stock incentive program is designed for senior executives, core technical personnel, and key management staff. Additionally, Shougang Zhixin has implemented an employee stock ownership plan.

The company offers a diverse benefits program, providing personalized support to different employee groups in three key areas: career care, family care, and holiday care. This approach enhances employee happiness and sense of belonging, ultimately improving talent retention. Shougang Co. strictly complies with regulations by contributing to pension, unemployment, work injury, medical, and maternity insurance, as well as housing provident funds. Additionally, the company provides supplementary benefits such as holiday and birthday allowances, corporate annuities, supplementary medical insurance for employees and their children, group accident insurance, supplementary pension plans, and commercial inclusive medical insurance. The company has also established diverse leave policies, including paid annual leave, home visit leave, parental leave, recuperation leave, childcare leave for parents of an only child, and paternity leave. Employees are provided with comprehensive recreational facilities, such as talent apartments, employee sports centers, and reading rooms. In 2024, Jingtang Co. published the *Employee Benefits Policy Compilation*, making it easier for employees to access and enjoy their benefits.

Salary

Post Salary System, Annual Salary System, Position-Performance Salary System
Post Salary, Performance Salary, Seniority Wage, Rank-based Salary, Year-end Double Salary, Equity Incentives
Lean Project Award, Management Innovation Award, Key Task Award, Business Contribution Award, Shougang Scientist Award, Shougang Craftsman Award, Research Project Award, Scientific and Technological Achievement Award, Small Indicator Competition Award, Three-Star Award, etc.

Allowance & Subsidy

Academic Allowance, Position Allowance, Housing Allowance, Transportation Allowance, Communication Allowance, Patent Allowance, Relocation Subsidy, Settlement Subsidy, Working Meal Subsidy, High-Temperature Subsidy, High-Skilled Talents Allowance, etc.



Democratic Management

Shougang Co. continuously improves its grassroots democratic management system, with the Employee Representative Congress as its core mechanism. Employees' opinions are sought before decisions are made, and employee supervision is ensured after implementation, maximizing their right to information and participation. The company has established both online and offline communication channels: Online, through the Shougang WeChat public account, the company shares updates on corporate strategy and industry trends, helping employees gain a deeper understanding of business development. Offline, the company has implemented the *Factory Affairs Disclosure Management System*, making key decisions that affect employees' interests publicly available. An Employee Representative Congress is held annually, allowing employees to participate in corporate management.

Employee-Friendly Workplace

Shougang Co. always insists on doing good things, doing practical things and solving difficult problems for employees. We consistently organize activities such as "Spring Care Visits, Summer Cooling Relief, Golden Autumn Education Assistance, and Winter Warmth Initiatives" to support employees' physical and mental well-being and personal growth, and build a friendly workplace.

Employee Needs Response Mechanism

To ensure timely feedback and resolution of employees' most concerned, urgent and difficult problem, the company has launched the "Smart Labor Union Platform-Employee Service Hotline". Employees can submit their needs online, and the company responds immediately, processes requests within a set timeframe, and provides timely feedback. Additionally, the company conducts an annual employee satisfaction survey, holds quarterly employee needs meetings, and organizes employee forums, open-door days, and informal discussions to provide face-to-face solutions to employee concerns. In 2024, the company prioritized resolving issues related to employees' children's education, female workers' labor protection supplies, and improvements in workwear quality. Employee request response rates, resolution rates, and satisfaction rates all reached 100%.

Case: Smart Union Platform

In 2024, Qiangang Co. launched the Smart Union Platform, which includes modules for health check-ups, cake vouchers, dumpling vouchers, employee benefits, employee needs, and digital employee communities. Through this platform, employees can claim benefits, submit requests anytime and anywhere, and track the entire progress of request handling.

Through the Smart Union Platform, employees have scheduled 7108 health check-ups, redeemed 8148 cake vouchers and 7046 dumpling vouchers, submitted and processed 181 requests, and created 204 digital employee communities, significantly enhancing the efficiency of trade union services and improving employees' sense of satisfaction and well-being.



Employee Satisfaction Survey

Each year, the Union and Human Resources Department conduct employee satisfaction surveys across different employee categories and special groups. These surveys are carried out through employee interviews, questionnaires, staff meetings, and the Employee Representative Congress to identify key factors affecting satisfaction. The survey focuses on work environment, learning and development, compensation and benefits, work experience, sense of achievement, job security, and self-fulfillment. In 2024, employee satisfaction at Qiangang Co., Cold-R Co., and Shougang Zhixin remained at a satisfactory level, while Jingtang Co. achieved a very satisfactory level, meeting the annual targets.

Assistance for Employees in Need

The company has established and continuously improved a support and relief service system for employees in difficulty. Various initiatives, including home visits, fundraising campaigns, employee mutual aid insurance, and the Shougang Assistance Fund, are employed to provide multi-channel assistance and effectively address the actual needs of employees. In 2024, the company provided aid to 251 employees in need, distributed condolence money RMB 1.5627 million. Additionally, 208 employees received special charitable relief, totaling RMB 261900.

In 2024,

Assisted **251** Employees in need
Distributed condolence money RMB

1.5627 million

208 Employees received
special charitable relief

Totalling RMB **261900**

Caring for Female Employees

The company safeguards and upholds the legal rights and special interests of female employees, ensuring equal pay for equal work and equal pay for equal positions between men and women. By organizing activities such as outstanding female employee recognition, "Women's Innovation in the Workplace" programs, and female employee discussion forums, the company enhances the competitiveness of female employees. To enhance the physical and mental well-being of our female employees, we organize various activities such as yoga classes, mental health workshops, traditional culture and etiquette training, nail art sessions, floral arrangement, and book clubs. We also create a more comfortable working environment by establishing dedicated facilities like female employee activity rooms, mother-and-baby care rooms, and nursing shuttle services. Additionally, we prioritize female employees' health through raising the standards for distributing female hygiene products, purchasing specialized health insurance for female employees, and offering gynecological health check-ups.

Youth Care

The company actively engages with young employees through opinion collection, discussion and exchange, and surveys to understand their needs in work, life, skill enhancement, and personal interests. Based on these insights, we organize various activities tailored to young employees, continuously exploring the characteristic activities suitable for young employees to support talent retention. In 2024, over 300 young employees participated in these activities.

Physical Health Management

The company enhances employees' awareness of health management and promotes all employees' physical fitness through physical examination twice a year. We leverage the Employee Health Station to provide online consultations, offline medical check-ups, health education, and employee health record management, ensuring comprehensive healthcare services for employees. By collaborating with Shougang Hospital, the company offers mobile health check-ups, medical lectures, and green access to healthcare services, addressing employees' challenges in obtaining medical treatment and prescriptions. Additionally, Jingtang Co. provides real-time medical consultations and medication guidance, establishing fast-track channels for medical treatment, prescription purchases, and precise diagnosis services.

Mental Health Care

The company continuously improves its employee psychological health service system, using the Employee Mental Wellness Center as a platform to expand mental health programs, strengthen emotional support, and enhance psychological care. In 2024, we promoted the "5+N" Psychological Care Action Plan, organized team counseling, one-on-one employee interviews, and company-wide intermediate psychological training. Additionally, the company built employee psychological profiles and crisis warning systems, organized a survey of "employee happiness", and the overall mental health index of employees showed a steady upward trend year by year. The company also integrates mental health into workplace management through stress tests and psychological activities at the team level, embedding mental wellness into daily operations.

Shougang Co.

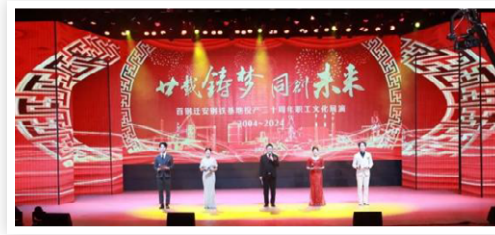
"Advanced Course Full-Scale Promotion of the 'Harmonious Team' Training System" project was awarded the Outstanding Psychological Service Promotion Project by the Beijing Municipal Federation of Trade Unions (for the fourth consecutive year)

Jingtang Co

"Building an EAP-Based Happy Enterprise Model" project was recognized as an Outstanding Promotion Project by the Beijing Municipal Federation of Trade Unions

Enriching Cultural and Sports Activities

The company attaches importance to the employees' spiritual and cultural needs and actively organizes various activities to provide diverse, high-quality, and targeted services, enhancing employee engagement and well-being. In 2024, we hosted a series of cultural festival events to celebrate the 20th anniversary of the Shougang Qian'an Steel Base production launch and the 15th anniversary of Jingtang Co.'s production launch, further enriching employee cultural activities. A total of 407 meticulously designed, diverse, and engaging cultural and sports activities were organized, with participation exceeding 10000 person-times. These included various sports events such as basketball matches, football games, health runs, Baduanjin exercises, fishing competitions, and swimming; cultural activities like hosting competitions, talent shows, and art appreciation; creative events such as garden parties and group weddings; and interest-based training programs for table tennis, badminton, swimming, and more. Among these, activities such as the employee singing competition, cultural performances, and basketball league gained widespread acclaim by combining online live streaming with offline events, enriching employees' cultural lives.



Employee Training and Development

Shougang Co. places great emphasis on employee growth and development, and establishes a diverse support platform to facilitate the mutual progress of both employees and the company. With capability technology, evaluation technology, and development technology as its foundation, the company has implemented a three-tier talent development system, the "Voyage" high-potential talent empowerment system, and an all-employee training management system. This has led to the formation of a "Three Teams, Three Series, and Three Channels" framework, enabling a "vertical promotion and horizontal mobility" development structure. This talent ecosystem fosters an environment conducive to career growth and advancement, laying a solid foundation for the company's sustainable development.

Career Development Paths. The company has established three career sequences: management, professional technology and skilled operations. Each sequence is designed to provide diverse career opportunities and clear promotion pathways, allowing employees to advance vertically and transition horizontally within the organization. Employees are continuously supported in their career development through tailored, targeted programs. For new employees, the company formulates Individual Development Plans (IDP) and implements a "On-the-Job Practice+Targeted Training+Three-Mentor System" to ensure a structured career growth path.

Performance Evaluation. The company has set up an Annual Performance Evaluation Committee, building a closed-loop performance management system covering goal setting, coaching, assessment, feedback, and results utilization. A transparent feedback and appeal mechanism is also in place, allowing employees to file appeals regarding performance reviews, job adjustments, training, and compensation benefits with the performance evaluation department or relevant managers. For managers, the company applies a combination of Key Performance Indicators (KPI) and 360-degree evaluation methods on an annual and monthly basis to gather multi-dimensional feedback. Performance results are directly linked to compensation, training, and career development, continuously enhancing leadership capabilities.

All-Employee Training. Focusing on the competency development of its three-tier talent teams, the company has established a comprehensive training management system covering business management, professional technology, and skilled operations, as well as training programs for relevant stakeholders. The training content includes qualification programs, specialized skills enhancement, and career development training. Additionally, the company nurtures internal trainers in various professional fields, facilitating knowledge sharing, development, and promotion. A pilot employee knowledge management platform has also been introduced to foster a culture of continuous learning and mutual empowerment.

In 2024,

Organized **1517** trainings

A total of **1.82** million training hours

An average training duration of **102** hours per employee

100% Training coverage rate

.....

Comprehensive Management Talent



Leadership Development Courses

"Cyan" Training Camp
Deep Blue Training Camp
Blue Star Youth Training Camp

Annual Promotion Rate
Approximately **50%**

Leading Scientific and Technological Talent



Innovation Thinking and Data Analysis Courses

Scientist Training Camp
Technical Expert Elite Training Camp
Technology Innovation Youth Training Camp
Technical Backbone Star Training Camp

Annual Promotion Rate
Exceeds **50%**

Craftsman-Type Skilled Talent



Intelligent Manufacturing and Experience Extraction Courses

Shougang Craftsman Training Camp
Skill Expert Training Camp
Future Craftsman Youth Training Camp
Skilled Master Star Training Camp

Annual Promotion Rate
Exceeds **60%**

For business management personnel

The training courses focus on leadership enhancement, with customized course designs incorporating business simulation exercises, case-based teaching, and interactive instruction. Training programs such as the "Cyan" Training Camp, Deep Blue Training Camp, and Blue Star Youth Training Camp are conducted to improve professional quality and comprehensive management capabilities of leaders.

For technical management personnel

The goal is to develop highly skilled professionals with broad vision, exceptional capabilities, and a strong drive for innovation, as well as to cultivate technical managers who lead professional advancements and master cutting-edge industry technologies. The company has organized advanced interdisciplinary technical training programs, facilitated regular benchmarking exchanges, and provided courses and discussions on steel industry frontiers and advanced technologies. Key personnel are encouraged to participate in high-end forums and specialized business exchanges, systematically enhancing their professional knowledge and technical expertise.

For skilled operators

The focus is on enhancing professional competence and technical skills. The company continuously conducts hands-on technical training, vocational skill competitions, and organizes events such as the Craftsman Lecture Hall to strengthen employees' problem identification, analysis, resolution, and job proficiency.

Case: "Three-Star" Selection Program

Since 2006, Shougang Co. has been conducting the "Three-Star" Selection Program for 19 consecutive years, aimed at fully motivating the enthusiasm and creativity of young talent in areas such as skills development, technical research, product innovation, production operations, market expansion, and management innovation. This initiative enhances the overall competence of young employees while fostering an environment and mechanism for talent to emerge. The "Three-Star" system consists of three levels: "Star of Hope", "Star of Excellence", and "Shougang Co. Star". Employees who have been awarded "Star of Hope" or "Star of Excellence" for three consecutive terms or a total of four terms will be automatically promoted to "Shougang Co. Star". As of the end of the reporting period, a total of 1367 employees have been recognized as Shougang Co. "Three-Stars".



A total of **1367** employees have been recognized as Shougang Co. "Three-Stars"

Case: Shougang Co. and Northeastern University Jointly Establishing a Practical Education Base

In 2024, Shougang Co. and Northeastern University jointly established a Practical Education Base, exploring new pathways and models for university-industry collaboration across multiple fields. This initiative aims to innovate talent development mechanisms and create a comprehensive hub that integrates a practical education base, a talent training center, an industry-university-research collaboration platform, a scientific research transformation hub, and a social service center. This collaboration strengthens academic-industry synergy, facilitating talent cultivation, technological advancements, and knowledge application for mutual development.



Risks and Opportunities Management

Risks	Response Measures
Breach of Contract by Recruited Students from Double First-Class Universities	Adopt a dual approach of recommendations from already signed students and recommendations from key university professors to quickly lock the candidates; establish practical education bases in collaboration with universities to reserve talents.
Loss of Key Talent	Improve talent development channels and mechanisms; enhance supplementary incentive mechanisms for core talent and increase non-monetary incentives; implement the "Wave Program" for new employees, providing a salary protection period; utilize the Risk Management Cockpit platform to establish an early warning system for key talent turnover rates, strengthening monitoring and oversight of workforce attrition.
Need to Strengthen Interdisciplinary Talent in Digitalization and Green Low-Carbon Development	Continuously strengthen the development of digitalization and green low-carbon management talent by focusing on digitalization, intelligent manufacturing, and green low-carbon initiatives, and systematically enhancing targeted, tiered training programs for employees across different roles.

Metrics and Targets

Shougang Co. tracks and monitors human resource-related targets and ensures the achievement of annual goals through regular evaluations, supervision, and follow-up actions.

Indicator		Unit	2024 Goals	2024 Results
Establish a Strategic Human Resource Structure	Employee Satisfaction	%	Satisfactory-Level	Satisfactory-/Very Satisfactory-Level
Provide Talent Support and Intellectual Assurance	Proportion of High-Ranking Employees	%	6	6.43
Preserve and Enhance Human Capital Value	Training Plan Fulfillment Rate	%	90	93

In the future, Shougang Co. will comprehensively enhance the foresight, systematic approach, and effectiveness of talent management, accelerate the implementation of the talent-driven enterprise strategy, and establish a strategic human resource management system. The company will steadily and continuously improve in areas such as talent quantity, talent quality, talent efficiency, and talent management, fostering a mutually beneficial development environment for both employees and the company. This will cultivate a talented team full of vitality and ability, supporting Shougang Co.'s goal of becoming a world-class, highly competitive listed company.

Special Topic

Entire Personnel Training System

Shougang Co. in alignment with its strategic development direction, business needs, and job requirements, tailors training programs based on employee career development planning. Through surveys, competency evaluations, and skill assessments, the company has classified and structured a "Six Categories, Four Levels" training framework, developing over 200 courses.

Developing High-Quality Programs for Targeted Empowerment

The company designs position-specific sequence systems tailored to different job families. In alignment with qualification standards and the company-wide training empowerment system, the company conducts pre-training needs analysis, identifying skill gaps and creating learning roadmaps for employees. We have determined the training courses, and innovatively used the training camp system, sand table simulation, publishing papers, serving as trainers and other ways to strengthen the training courses.

For the three-tier talent growth and development plan, the company has implemented a four-level, progressive training system, managing content in modular formats and using full-time military-style management to optimize learning time, shorten talent development cycles, and establish a structured high-potential talent development strategy.

Establishing High-End Talent Development Centers

Shougang Co. collaborates with strategic clients, industry experts, and universities to set up joint laboratories, expert workstations, innovation studios, and master skill studios, enhancing market analysis, product R&D, and technological innovation capabilities, accelerating the growth of scientific and technical talent.

Enhancing Internal Training Capabilities

The company has implemented the *Internal Trainer Training Camp Program*, leveraging an internal trainer course system to establish the mechanism of selection, training, evaluation, promotion, incentive, and exit mechanisms. A four-tier internal trainer talent pool has been created, developing training courses in lectures, videos, and simulated operations to improve knowledge management and internal training capability. By the end of the reporting period, Shougang Co. had nearly 1000 certified internal trainers at various levels.

Building a Skills Competition Platform

The company has established three major mechanisms to promoting training by competition of "integrating participation, incentives, and career progression", improving operational skills and refining best practices. We encourage and motivate skilled talent to hone their expertise and accelerate career growth. By the end of the reporting period, 485 employees had achieved outstanding results in global, national, and regional competitions.

Creating a Learning-Oriented Organization

Shougang Co. creates a learning organizational culture of continuous learning and mutual empowerment, providing platforms for knowledge-sharing and organizing employee experience-sharing activities.

In 2024, the company was honored as a "Best Learning-Oriented Organization Benchmark".



Cyan" Training Camp



Deep Blue Training Camp

Occupational Health and Safety

Shougang Co. upholds the philosophy of "People First, Life First" and aims to become an international benchmark enterprise in workplace safety. The company has established a "Five-in-One" Occupational Health and Safety Management System, strengthening data thinking and guiding safety management, implementing source control measures through innovative strategies, and utilizing technology to improve management efficiency. This creates a secure and stable environment, achieving a benign interaction between high-level safety and high-quality development.

During the reporting period, safety investment totaled RMB 155 million, with 0 major or severe production safety accidents occurred and the injury severity rate of work-related accidents of 0 per million man-hours, maintaining a stable and safe production environment.

◆ Governance

In compliance with the *Production Safety Law of the People's Republic of China* and other relevant regulations, the company has established a Work Safety Committee to implement national safety policies and comprehensively oversee safety management. The Work Safety Committee Office, located within the Safety Department, is responsible for communication, supervision and implementation of the committee's decisions and arrangements.



The company strictly complies with the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*, the *Production Safety Law of the People's Republic of China*, and other relevant laws and regulations. We have established and improved the company-wide *Safety Production Responsibility System* and formulated 56 management regulations, including the *Safety Education and Training Management System*, the *Safety Risk Classification Control and Hazard Investigation and Management System*, the *Safety Production Investment Management System*, the *Occupational Disease Hazard Monitoring and Evaluation Management System*, the *Building and Area Fire Safety Management Measures*, the *Stakeholder Safety Management System*, the *Emergency Rescue Management System for Production Safety Accidents*, the *Safety Production Reporting and Reward Management System*, and the *Production Safety Accident Management System*. These regulations clearly define the safety responsibilities and management requirement of each department and personnel at all levels, ensuring the effective implementation of occupational health and safety work.

In 2024, the company closely followed regulatory and standard changes and revised regulations based on actual site conditions. These include the *Production Safety Accident Management System*, the *Safety Production Objectives and Commitment Management System*, the *Safety Production Interview Management System*, the *Safety Production Expert Management System*, the *Safety Production Reporting and Reward Management System*, the *Hazardous Gas Safety Protection Management System*, the *Production Safety Accident Management System*, and the *Change Project Safety Management System*. These revisions not only ensure compliance with management regulations, but also further enhance the overall safety management level.

Safety Management System

The company is fully committed to building a “Five-in-One” Occupational Health and Safety Management System, advancing the standardization of workplace safety, implementing the “Three Managements and Three Musts”⁶ approach, strengthening change management, ensuring unified coordination of stakeholders, and enhancing the emergency response management system. By clearly defining and refining safety responsibilities, reinforcing full-process control from multiple dimensions, and ensuring coordinated stakeholder management, the company guarantees compliance and risk control in safety management.

Establishing the “Three Managements and Three Musts” System. Anchored in the responsibilities of professional departments, the company has implemented a structured responsibility list management system to clarify key safety obligations, eliminate bottlenecks in professional system compliance, and ensure a deep and practical approach to accountability, covering awareness of responsibilities, clear role definitions, duty fulfillment, diligence, accountability enforcement, and responsibility tracing.

Establishing a Change Management System. Centered on changes in process technology, energy media, personnel organization, and facilities, the company has developed a comprehensive control mechanism through top-level design. This system defines hierarchical management standards, control principles, and evaluation systems, while enhancing professional collaboration.

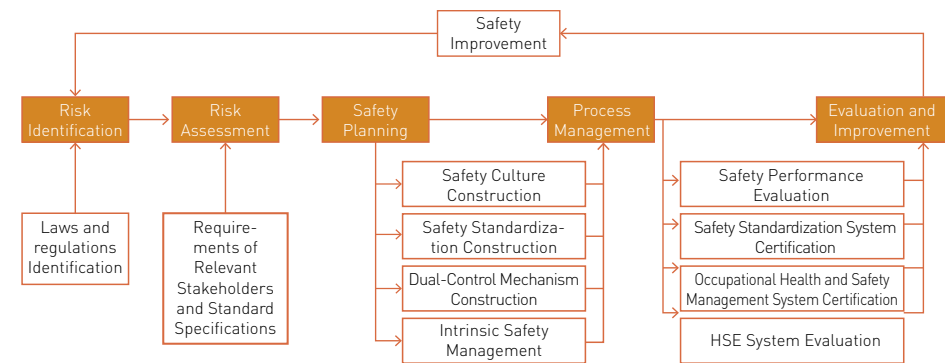
Building a Unified Stakeholder Coordination Management System. With a risk management-focused approach, the company implements the “Four-in-One” management model, which includes identifying risks together, formulating measures together, training personnel together, and evaluating performance together. This system ensures early intervention in hazardous operations, tiered review of control measures, hands-on training for critical positions, and joint evaluation of safety performance.

Strengthening the Standardized Operation System. Following the “121”⁷ safety production standardization management model, the company enhances the in-depth analysis and resolution of hidden hazards and establishes a regulatory compliance verification mechanism.

Enhancing the Emergency Rescue System. Focusing on shortcomings and weaknesses, the company continuously improves emergency response plans, deepens job coordination and joint drill mechanisms, and upgrades emergency rescue equipment. We focus on resolving critical rescue challenges and conducting practical drills in different time periods and extreme weather conditions.

Safety Management Process

To ensure stable and secure production, the company has developed a safety management framework based on risk identification, risk assessment, safety planning, operational control, safety inspections, and evaluation and improvement. This framework establishes a clear, goal-oriented, and continuously improving safety management system, effectively eliminating or preventing potential safety risks and hazards in production processes, thereby ensuring safe and stable operations.



Accident Handling Process



⁶ Three Managements and Three Musts: Managing the industry must include safety, managing business operations must include safety, and managing production and operations must include safety.

⁷ 121: 1 – Undergo a national safety standardization review once every three years. 2 – Conduct two internal audits per year. 1 – Engage an external organization for one external audit per year.

Safety Certification

To enhance corporate safety management, the company has established a Safety Standardization Management Committee and developed a comprehensive safety standardization management system. This system ensures systematic safety management, standardized job operations, intrinsic safety of equipment and facilities, and well-organized work environments. Six operational units have successfully obtained National Level 1 Safety Standardization Certification. Additionally, the company and its various bases have passed the certification for Occupational Health and Safety Management System and HSE (Health, Safety, and Environment) Management System. During the reporting period, the company and all its bases achieved a 100% pass rate in the review assessments.



ISO 45001:2018 Occupational
Health and Safety
Management System
Certification Certificate



HSE Management System
Evaluation Certificate



Jingtang Co. ISO 45001:2018
Certification Certificate

Strategy

The company considers occupational health and safety as the foundation of corporate development, adhering to the principles of strengthening safety management fundamentals and reducing safety risks. It follows the policy of "Safety First, Prevention-Oriented, and Comprehensive Management" and focuses on: Establishing a company-wide safety responsibility system, ensuring that all employees take ownership of safety in production. Through improving the accident hazard identification and rectification system, the company effectively preventing major risks and eliminating significant hazards. By focusing on improving the safety prevention and control system and enhancing the ability to prevent and resolve major risks, the company comprehensively promotes the modernization of the safety production governance system and governance capacity, and continuously improves the safety production capability and the occupational health level of employees.

Safety Culture Construction

The company has formulated the *Safety Culture Construction Implementation Plan* and established a Safety Culture Construction Management Organization led by company executives. The plan outlines clear objectives and implementation measures to strengthen the company's safety culture. Leveraging Safety Committee at all levels, dedicated safety meetings, and operational department safety committees, we plan and implement safety culture initiatives. Employee representatives are invited to supervise the implementation of safety culture responsibilities, ensuring public supervision.

During the reporting period, "Leadership and Experts Teaching + Team-Level Safety Instructors" training was conducted 6659 times, with 74610 total participants. "Experiential+Perceptual" safety training sessions were conducted 155 times, with 3300 total participants. "Typical Hazard Identification + Job Realism" training sessions were conducted 277 times, involving 4643 participants.

Case: "Perceptual+Experiential+Interactive+Realistic" Training

The company recognizes that inadequate training poses the greatest hidden danger to workplace safety. Therefore, we have transformed our pre-maintenance training approach from traditional conference room education to an innovative, diversified training model incorporating "perceptual+experiential+interactive+realistic" methods. By implementing hands-on training at key operational sites, employees can intuitively and profoundly understand and master safety operation procedures. This management innovation initiative has significantly reduced the occurrence of violations, ensuring the safe and smooth execution of maintenance work.



Before improvement



After improvement

Digital and Intelligent Safety Management

The company upholds the philosophy of "Technology for Safety, Data and Intelligence for Security", actively embracing intelligent and digital transformation. Driven by innovation and technology, we continuously upgrade safety management through data and intelligence, leveraging information and digital technologies to enhance safety innovation management. The company promotes essential safety management by implementing initiatives such as: Enhancing maintenance safety to improve efficiency and reduce risks. Developing auxiliary work equipment for operations. Replacing manual work with mechanization, reducing labor intensity through automation, and advancing unmanned intelligent operations. These efforts have significantly improved both safety and operational efficiency.

During the reporting period, 9 management innovation achievements were completed, 2 local safety standards were drafted, and 16 national patent applications were submitted. By integrating technological innovation with management enhancement and frontline safety improvements, the company continues to drive high-quality development.

Case: 3D Modeling of High-Risk Areas and UWB Positioning Technology for Integrated Personnel Safety Management

Cold-R Co. has implemented a comprehensive safety management system by leveraging 3D modeling and Ultra-Wideband (UWB) positioning technology in high-risk areas. On the basis of installing personnel behavior recognition camera in zinc pot area in the early stage, the company has now created 3D models of high-risk zones, including the galvanized dual-line cable tunnel, furnace area, zinc pot, and basement. With UWB positioning technology, real-time personnel locations are displayed within the 3D model interface, ensuring that any entry into hazardous areas is both visible and controllable. The system integrates multiple safety features such as SOS alerts, electronic fences, video linkage, and personnel tracking. This initiative enables comprehensive, integrated management of personnel access, location tracking, movement trajectories, electronic fence monitoring, and emergency response.

Occupational Health Management

In 2024, the company implements comprehensive measures in occupational health management. We have strictly adhered to the *Occupational Disease Prevention and Control Law of the People's Republic of China* and other regulations, and developed the *Occupational Disease Prevention and Control Plan and Implementation Scheme*, outlining clear goals and pathways. Through current assessments, daily monitoring, and high-toxicity evaluations, the company achieved a 100% detection rate for occupational disease hazard factors. All exposed employees underwent physical examinations, with a 100% examination rate, enabling timely detection and intervention of potential

issues. Occupational health protection training was conducted with a 100% Quality Pass Rate to enhance employee awareness. The company strengthened protective facility construction by establishing a digital gas monitoring platform, installing 5667 fixed alarms, and providing 1202 portable detectors. Automated and intelligent systems have been employed to reduce exposure time, and sealed covers have been used to minimize dust leakage. For high-risk areas, the company has applied "Four New" technologies to implement 20 noise reduction, dust reduction, and toxic hazard reduction projects.

The coverage rate of occupational disease prevention knowledge training has reached

100%

The coverage rate of physical examinations has reached

100%

The detection rate of occupational disease hazard factors has reached

100%

Stakeholder Safety Management

In 2024, the company actively responded to relevant laws and regulations, striving to establish a unified and coordinated stakeholder safety management system. Given that the *Criteria for Identifying Major Accident Hazards in Industrial and Trading Enterprises* explicitly includes the unified coordination and management of workplace safety for related parties as part of the major accident hazard identification standards, the company has proactively taken action, placing risk control at the core while deeply exploring and implementing best practices in stakeholder safety management. Through visiting, investigation and in-depth analysis, the company has identified the key challenges in stakeholder safety management, deeply explored the inherent regulars and development trends behind these challenges. To address these issues, the company has innovatively implemented the "Four-in-One" management model, and established a unified stakeholder coordination management system with orderly operation.

Joint Risk Identification

The company classifies and manages stakeholders based on their business attributes and workforce size, defining management principles, inspection standards, and inspection frequency. Specialized departments, project owners, safety management personnel, and stakeholders jointly conduct on-site safety risk identification, ensuring comprehensive, all-encompassing risk assessments with continuous dynamic updates.

Joint Measure Implementation

For high-risk projects, the company organizes specialized departments, project owners, supervisors, and other relevant units to collaboratively develop targeted control measures for stakeholders, ensuring effective risk mitigation.

Joint Personnel Training

A comprehensive, tiered training plan has been established, integrating high-risk workers, construction team leaders, and safety management personnel from stakeholder entities into the company's internal training system. Through standardized training, their safety awareness and professional skills are significantly enhanced.

Joint Performance Evaluation

The company has formulated assessment criteria and evaluation cycles for stakeholders, conducting regular safety performance evaluations. Assessment results are directly linked to fines, meetings, workload reduction, or termination of cooperation, ensuring that stakeholders continuously improve their safety management standards.

During the reporting period, the company implemented graded risk management for 104 stakeholders based on their specific risk characteristics and conducted supervision and audits of hazardous operations and change projects, verifying a total of 701 risk identification results. With the goal of “one improvement and two reductions”⁸, the company developed and applied 181 types of maintenance tooling, collaborated on 13 experiential training programs, and trained a total of 1828 participants. Additionally, the company conducted 9 special topic training sessions focused on standardized management of basic archives and the release of typical post-maintenance issues.

Case: Performance Evaluation Linkage, Strengthening Stakeholder Management

Jingtang Co. has strengthened its evaluation and management mechanism for stakeholders, ensuring that responsibilities are clearly defined and implemented. Each relevant functional department conducts comprehensive quarterly evaluations for stakeholders under their supervision. The company has established a safety evaluation standard for maintenance and inspection units, titled *Equipment System Stakeholder Safety Production Work Evaluation Standards*, and uses this standard to rank maintenance and inspection units. For units with lower rankings, the responsible leaders are promptly invited for a performance discussion, and assessment measures are implemented to urge improvements in safety management.

The company regards the evaluation results of stakeholders serve as a critical basis for business cooperation in the following year, ensuring that safety remains under control throughout the process of business engagement with stakeholders.

Hazardous Chemicals Management

The company strictly implements the relevant regulations and standards for hazardous chemicals safety management. In 2024, the company achieved a systematic improvement in the lifecycle management of hazardous chemicals, standardizing the full-process such as procurement, transportation, loading and unloading, and waste disposal. The company developed 11 inspection standard checklists, including Sulfuric Acid, Hydrochloric Acid, Ammonia Water, Liquid Ammonia, Hydrogen Stations, Oxygen, Liquid Oxygen, Liquid Nitrogen, Liquid Argon, LNG, and Laboratory Inspection Standards, and improved 13 types of information cards. Additionally, the company has reduced or replaced 7 hazardous chemicals, optimized 5 process interlocks, and reduced usage risks. Through measures such as full-process risk verification, double confirmation during loading and unloading, graded and categorized storage control, special safety measures for storage tank accessories, targeted end-use control, precise traceability of waste disposal, and strengthened management of toxic and hazardous areas, the company ensures effective control throughout the entire lifecycle of hazardous chemicals.

Developed **11** types
of inspection standard
checklists

Improved **13** types
of notification cards

Fire Safety Management

The company attaches great importance to fire safety management. In terms of basic management, through reviewing regulatory requirements, the company has clarified the responsibility checklist for fire safety facilities across 111 office and on-site areas, comprising 10 categories and 8946 items. The company has also organized fire safety professional training activities to enhance practical firefighting capabilities, conducting 35 sessions with 2265 participants.

In terms of risk mitigation

The company has focused on critical areas such as hot work operations, heat source risks near combustible materials, high-temperature material transport belts, electric vehicle management, maintaining clear emergency exits, and electrical fire prevention measures. The company conducted thorough research and risk assessment, identifying risk points and successfully completed 103 projects, cutting off 56 potential fire hazards related to high-temperature sources and combustible materials. Furthermore, 33 intelligent elevator blocking systems were deployed, effectively preventing elevator fire accidents.

In terms of risk reduction

The company has established a management mechanism focused on “reducing risk points and curbing the increase of new risk points”. Specialized fire safety systems, such as automatic sprinkler systems, fire water supply systems, and fire hydrants, were rectified to eliminate hidden risks. A complete fire project management mechanism covering “pre-management, process supervision, and completion evaluation” was also implemented.

Emergency Safety Management

To strengthen and improve the emergency rescue system, the company has implemented a series of institutional safeguard measures to clarify the responsibilities of all levels of personnel. An emergency management organization has been established, headed by the General Manager, responsible for coordinating and overseeing all emergency rescue operations. The company has developed emergency response plans, including the *Comprehensive Emergency Plan for Production Safety Accidents* and the *Comprehensive Firefighting and Emergency Evacuation Plan*, which have been reviewed and filed by the government, ensuring their legality and effectiveness. To enable quick on-site response, the company has developed emergency response cards, outlining the processes and key steps for emergency handling.

The company has innovatively implemented a collaborative emergency rescue model, organizing cross-position and cross-regional drills, identifying difficult positions, establishing a collaborative network, and improving the information communication mechanisms. For areas with high emergency rescue difficulty, such as limited spaces, and heights, the company starts from equipment, skills and plans to overcome difficulties. Information technology is used to enhance the overall efficiency of emergency rescue to ensure accurate and efficient rescue operations.

During the reporting period, 5492 drills were organized at various levels, including 280 targeted collaborative drills. These drills helped improve 45 deficiencies and promoted the integration of interview-based tabletop exercises and on-site practical operations as well as “double random” real-life drills, accurately enhancing employees’ ability to handle emergency situations.

⁸ One Improvement, Two Reductions: Improve maintenance efficiency, reduce labor intensity, and reduce safety risks.

➤ Risks and Opportunities Management

Risks Management

The company adheres to safety culture as the guiding principle, with safety standardization as the main line, the "dual-control" mechanism as the core, and intrinsic safety management as the focus, striving to prevent and mitigate major risks. This approach has established a comprehensive responsibility system, control system, and continuous improvement system. In 2024, the company concentrated on risks classified as major or above, and expanded 76 real-time dynamic monitoring points for critical parameters of process equipment; successfully downgraded 32 risks classified as major or above through targeted initiatives; implemented root-cause management for 31 frequently recurring hazards; conducted in-depth remediation of 38 frequently triggered alarm points; developed and deployed a high-risk operations monitoring platform, enabling fixed-point positioning, trajectory tracking, and real-time remote data sharing of portable detectors for operations in gas zones and confined spaces; pioneered a new model for addressing major accident hazards, starting with a pilot program; priority was given to highly dynamic and easily generated major hazards, tracing 432 influencing factors throughout the process, addressing 109 factors through targeted interventions, and breaking the chain of hazard formation.

Process Units	Main Accident Risks	Risk Distribution Points	Risk Control Measures
Ironmaking	Poisoning and Asphyxiation, Fire, Burns, and Other Explosions	Charging System, Blast Furnace System, Hot Stove System, Pulverized Coal Injection System	For material supply, blast furnace equipment, hot air supply, and coal injection systems, electrical interlocks are implemented to ensure effective safety interlock protection functions during the production process, such as furnace slag erosion monitoring and early warning models, and other informatization control technologies.
Steelmaking	Poisoning and Asphyxiation, Fire, Burns, and Other Explosions	Raw Material Hoisting, Secondary Refining, Converter Smelting, Continuous Casting	Focusing on the risks of molten steel explosion, the entire process of risk tracing and influencing factors are managed through informatization early warning monitoring and inherent safety governance, cutting off the formation chain of hazards. For example, the oxygen lance cooling water flow difference early warning control system, water pipeline routing modifications, and condensate drainage collection devices.
Rolling	Mechanical Injury, Fire, Burns, etc.	Pickling System, Reheating Furnace System, Rolling System	Establish a complete energy isolation control system using lock-out/tag-out and mechanical protection measures to ensure effective control of risks during rolling production. For instance, mechanical protection safety locks are interconnected with electrical control modules to achieve interlocking control functionality.
Sintering	Mechanical Injury, Poisoning and Asphyxiation, Fire, Burns, and Other Explosions	Raw Material System, Belt Conveyor System, Sintering Ring Cooler System	Empower safety through technology by introducing intelligent equipment and setting up complete belt protection and emergency shutdown systems to ensure safe operation of the belt system. For example, the use of hot material belt robots for intelligent inspections and automatic emergency sprinkler fire-fighting systems.
Coking Gas	Poisoning and Asphyxiation, Fire, and Other Explosions	Coke Gas Recovery and Purification System, Coke Gas Transmission and Pressurization System	Develop and apply high-risk operation monitoring platforms to achieve fixed point, positioning and trajectory tracking, and real-time data sharing of portable alarms in gas areas and limited space operations. The platform enables one-person alarms with multiple notifications, achieving real-time, technological, and intelligent safety supervision in high-risk operation sites.

Opportunities Management

The company always regards occupational health and safety as the cornerstone of sustainable business development, actively responding to risks and challenges, seizing opportunities, and continuously improving its management level through innovative strategies and practices.

Opportunities Identification

Regulatory and Policy Orientation

With the continuous improvement and strengthening of national regulations and policies on occupational health and safety, the company actively responds to policy orientation, transforming regulatory requirements into business development opportunities. By planning ahead and operating in compliance with regulations, the company has built a strong corporate image in the market and earned customer trust and loyalty.

Market Shift in Focus

As public attention to supply chain safety increases, the market demand for products from companies with strong occupational health and safety records is growing. The company has enhanced its occupational health and safety management, which has strengthened the market competitiveness of its products and opened up new market opportunities.

Technological Innovation and Application

Driven by digitalization and intelligent technologies, the company actively explores the application of new technologies in the field of occupational health and safety, such as using big data analysis to predict potential risks and utilizing Internet of Things (IoT) technologies for remote monitoring and early warning systems. These technological innovations not only improve management efficiency, but also help the company build a strong brand image.


Opportunities Management Strategy

The company has established a "Five-in-One" occupational health and safety management system, which includes the safety production standardization operating system, the "three controls and three musts" management system, the unified coordination management system for stakeholders, the safety management system for change projects, and the production safety accident emergency rescue system. By clarifying responsibilities, standardizing processes, and strengthening execution, the company ensures the effective implementation of all occupational health and safety measures.



Metrics and Targets

In 2024, the company achieved zero accidents in production safety, and all safety goals were successfully met.

Goals	Target Completion in 2024
0 major or severe production safety accidents (including fires) occurred	 All Goals Have Been Successfully Achieved
No occupational disease-related accidents or new occupational diseases	
100% completion rate of safety education training and emergency drill plans	
100% completion rate of annual hazard rectification	
No incidents of concealing, falsely reporting, or delaying the reporting of production safety accidents	
10% reduction in the risk value of key project challenges	

To strengthen the effectiveness of safety production management, the company has developed medium- and long-term safety production goals and plans tailored to its operational realities. These plans ensure that all safety production measures comply with legal and regulatory requirements and, through detailed planning, ensure that the implementation process remains legal and compliant.

Targets in 2025

To achieve a new breakthrough in the construction of the Five Major Systems, the company will drive a new transformation in data-driven management, improve innovation leadership, and achieve new outcomes in collaborative development. The specific safety goals in 2025 are: Zero major or severe production safety accidents (including fires) occurred; Zero newly added occupational diseases; Injury frequency rate per million hours worked to be controlled below 0.65. Additionally, the company aims to achieve 100% completion of safety education training and emergency drill plans, 100% completion of annual hazard rectification within the set timeframes, and strive for a 30% reduction in the risk value of key projects.

0 Newly added occupational diseases

Injury frequency rate per million hours worked to be controlled below

0.65

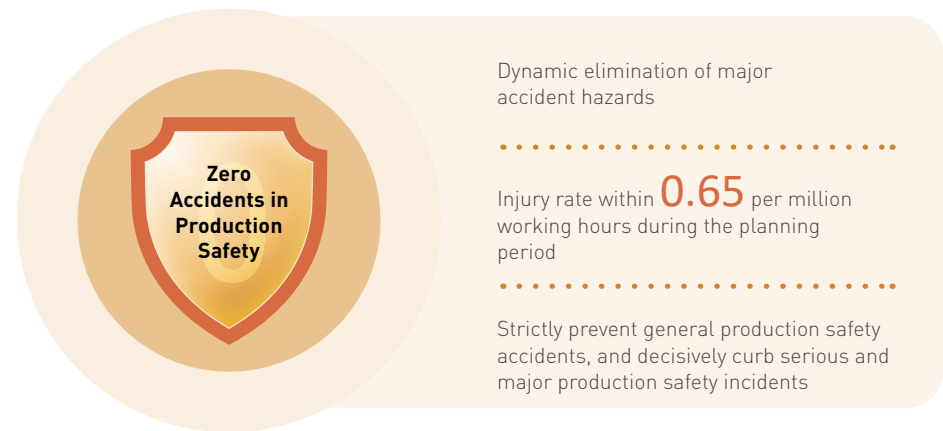
100% Completion of safety education training and emergency drill plans

100% Completion of annual hazard rectification within the set timeframes

30% Reduction in the risk value of key projects

Future Development Goals

Shougang Co. will establish a Long-Term Safety Management Mechanism. The company adheres to safety standardization as the main line, with clear guidelines to strengthen the responsibilities of the "Three Managements and Three Musts" framework. By benchmarking the advanced practices of enterprises in the industry, the company continuously innovates safety management models to promote overall management improvement. The focus is the "dual control" mechanism, which proactively addresses risks by implementing information systems for 4 major areas and 16 platforms. This extends to the focus on process safety, introducing innovative practices such as compliance verification, interview-based risk identification, and reverse accident investigation to enhance the comprehensiveness of risk identification and the effectiveness of control measures. With an emphasis on intrinsic safety management, the company aims to improve efficiency and reduce risks by integrating technological innovations and intelligent technologies applications. This includes deepening the source control of major accident hazards, continuously developing and applying maintenance tools, and advancing the depth, breadth, and scope of intrinsic safety management. Safety culture is integrated into daily operations and employee behavior, fostering a self-managed and finely managed environment. The company focuses on the safety management characteristics at different stages of development, addressing variables such as production processes, equipment maintenance, and construction risks. Through system building, data analysis, and innovation-driven management, the company continues to modernize its safety production governance system and capabilities, enhancing its ability to prevent and mitigate major risks. This includes achieving dynamic elimination of major accident hazards, controlling the injury rate within 0.65 per million working hours during the planning period, strictly preventing general production safety accidents, and decisively curbing serious and major production safety incidents.



Social Contributions

Shougang Co. actively supports the development of public welfare causes, aligning with the company's mission and strategic goals. Key areas of focus on public welfare support include rural revitalization, disaster relief, volunteer services, environmental protection, educational assistance, and industry development. Each year, the company develops a public welfare support plan that defines public welfare projects and budgets.

1028 Employees
participating in volunteer activities

Per capita volunteer service

hours: **5** hours

The company actively fulfills its social responsibilities, expands the achievements in poverty alleviation, implements consumption-based poverty alleviation, and contributes to the overall advancement of rural revitalization. In 2024, the company procured agricultural products from poverty alleviation areas, such as Jujube and grape produced in Xinjiang Uygur Autonomous Region, millet produced in Jianchang County, Hami melon produced in Inner Mongolia Autonomous Region, and potatoes produced in Yangyuan County, totaling RMB 1.9504 million.

Through charitable donations, support for kindergarten construction, organizing "Learning from Lei Feng" activities, and actively encouraging employees to participate in volunteer work, the company strives to improve the quality of life and development levels of local communities. The company has organized the "Learning from Lei Feng" activities for 11 consecutive years, providing volunteer services such as free medical consultations, haircuts, knife sharpener, and small household appliance repairs to surrounding communities, contributing to building a better community with Shougang Co.'s efforts. In 2024, the company donated RMB 979900.



"Learn from Lei Feng" Volunteer Service

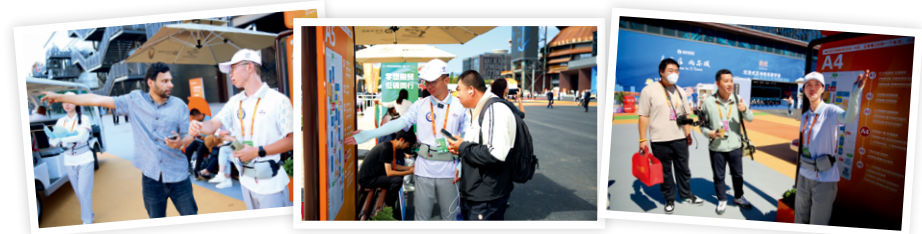
The company actively promotes the concept of green development through initiatives such as voluntary tree planting and Environmental Day-themed activities. In 2024, Jingtang Co. organized young employees to participate in environmental protection-themed activities at Caofeidian Forest Park, Caofeidian Urban Pavilion, and the Shougang Park, raising awareness about green, low-carbon environmental protection and promoting Shougang's green development philosophy.



The company insists on integrating with the city by providing heating services, advancing solid waste resource comprehensive utilization projects, and promoting harmonious progress with the community. Starting from the product manufacturing lifecycle, the company continues to promote the efficient recycling of resources, creating a new development model of internal enterprise circulation, regional industrial cooperation, and integration between the city and the enterprise. For example, the company collaborates with Jinyu Group, Beijing University of Science and Technology, and the government of Qian'an City to promote the solid waste resource utilization project, helping Qian'an and Tangshan achieve zero solid waste emissions, contributing to the creation of "waste-free cities" and "clean cities".

Case: Qiangang Co. Blast Furnace Slagging Washing Wastewater Waste Heat Recovery Replacing Raw Coal Boiler Heating

Qiangang Co. has been deeply exploring its thermal energy resources and actively giving back to society. The company implemented a blast furnace slagging washing wastewater waste heat recovery project to replace the original raw coal boilers used for heating. The recovered waste heat is utilized to provide heating for the company's plant area as well as surrounding residential areas, schools, hospitals, and other regions. The total heating area reaches over 1.1 million square meters, benefiting more than 9000 households. This initiative helps the company save 31500 tonnes of standard coal annually.



CIIE Volunteer Service

Key Performance Indicators Form

Economic Indicator	Unit	2022	2023	2024
Operating revenue	RMB 1,000	118,142,184	113,761,444	108,310,796
Profit before tax	RMB 1,000	1,793,114	900,320	745,605
Net profit	RMB 1,000	1,509,415	753,805	595,153
Total tax	RMB 1,000	3,053,651	2,728,941	1,620,348

Environmental Indicator	Unit	2022	2023	2024
Environmental investment	RMB million	1,122	838	268
Total investment in environmental protection in the past 5 years	RMB million	6,245	4,701	4,975
Environmental pollution incidents	Item	0	0	0
Environmental fines during the reporting period	RMB 1,000	0	0	0
Environment training coverage	%	100	100	100
Environmental protection performance evaluation (The highest grade: A)	Grade	A	A	A
Proportion of operations certified by the environmental management system	%	100	100	100
Proportion of operations certified by the energy management system	%	100	100	100
Energy consumption	Tonne standard coal	13,842,868	13,898,235	16,055,181
Total natural gas consumption	m ³	219,690,746	242,155,100	230,108,541
Total steam consumption	m ³	2,343,890	2,381,176	2,001,625
Total raw coal consumption	Tonne	6,847,351	6,704,644	6,393,322
Clean energy/renewable energy consumption	Tonne standard coal	90,207	114,459	159,551
Proportion of clean energy/renewable energy consumption	%	0.65	0.82	0.99
Volume of externally sourced scrap	1,000 tonnes	719	1,116	2,813
Volume of internally recovered scrap	1,000 tonnes	578	414	956
Electricity consumption	Million kWh	15,131	14,748	15,908

Environmental Indicator	Unit	2022	2023	2024
Self-generated electricity volume	Million kWh	7,025	7,645	7,611
Proportion of self-generated electricity	%	46.43	48.56	47.84
Self-provided clean energy generation capacity (photovoltaic power generation)	MW	13.69	13.70	38.90
Annual generation of self-provided clean energy (photovoltaic power generation)	MWh	15,500	15,320	18,220
Purchased green electricity	Million kWh	719	916	1,280
Annual fresh water consumption	1,000 tonnes	66,968	68,787	64,922
Water recycled rate	%	98.73	98.73	98.79
Particulate matter (PM) emissions	Tonne	4,907.51	5,397.81	5,397.15
Sulfur dioxides (SO ₂) emissions	Tonne	2,212.02	2,075.01	2,000.92
Nitrogen oxides (NO _x) emissions	Tonne	5,226.31	4,022.14	4,091.70
Business impact of water-related events	RMB 1,000	0	0	0
Total wastewater discharge	1,000 tonnes	434.71	373.74	346.60
Chemical oxygen demand (COD) in wastewater discharge	Kg	1,559.61	1,590.00	639.03
Ammonia nitrogen(NH ₃ -N) in wastewater discharge	Kg	86.00	69.00	54.66
Waste generation	Million tonnes	12.38	13.05	13.46
General waste generation	Million tonnes	11.92	12.67	13.00
General waste recycled	Million tonnes	11.92	12.67	13.00
Hazardous waste generation	Million tonnes	0.46	0.38	0.46
Hazardous waste recycled	Million tonnes	0.45	0.38	0.44
Waste recycled	Million tonnes	12.37	13.05	13.44
Proportion of waste recycled	%	99.92	99.98	99.86
Comprehensive utilization rate of solid waste	%	99	100	100
Comprehensive utilization rate of steel slag	%	100	100	100
Comprehensive utilization rate of dust	%	100	100	100
GHG emissions (Scope 1)	tCO ₂ e	38,542,164	41,192,512	41,644,387
GHG emissions (Scope 2)	tCO ₂ e	3,936,676	2,786,781	2,580,827
GHG emissions (Scope 1 & 2)	tCO ₂ e	42,478,839	43,979,293	44,225,214

Social Indicator	Unit	2022	2023	2024
Total number of employees	Person	18,608	18,226	17,762
Number of male employees	Person	16,675	16,322	15,932
Number of female employees	Person	1,933	1,904	1,830
Number of employees aged 30 or younger	Person	1,836	1,656	1,500
Number of employees aged 30-40	Person	9,759	9,244	8,161
Number of employees aged 40-50	Person	3,944	4,452	5,066
Number of employees aged 50 or older	Person	3,069	2,874	3,035
Number of employees with master degree or above	Person	1,497	1,631	1,628
Number of employees with bachelor degree	Person	7,895	7,935	7,911
Number of associate employees	Person	5,809	5,573	5,397
Number of employees at vocational schools and below	Person	3,407	3,087	2,826
Number of labor dispatched employees	Person	0	0	0
Number of part-time employees	Person	0	0	0
Proportion of ethnic minority employees	%	4.60	4.86	4.96
Proportion of employees belonging to vulnerable groups	%	11.53	11.25	12.73
Number of employees with disabilities	Person	211	212	170
Proportion of employees with disabilities	%	1.13	1.16	0.95
Employee quit rate	%	0.70	1.23	2.18
Voluntary quit rate	%	0.70	1.23	2.18
Quit rate of male employees	%	0.81	1.15	2.14
Quit rate of female employees	%	0.92	0.35	2.53
Quit rate of employees under 30 years old	%	1.87	2.58	4.18
Quit rate of employees aged 30-40	%	1.61	0.74	0.97
Quit rate of employees aged 40-50	%	0.17	0.12	0.54
Quit rate of employees 50 years old or older	%	0.48	0.35	4.92
Signing rate of labor contracts	%	100	100	100
Proportion of employees covered by collective agreements	%	100	100	100

Social Indicator	Unit	2022	2023	2024
Social insurance coverage	%	100	100	100
Return to work rate of female employees that took parental leave	%	100	91.79	100
Retention rates of female employees that took parental leave	%	100	100	100
Total number of new hires	Person	228	206	200
Number of male new hires	Person	206	176	180
Number of female new hires	Person	22	30	20
Number of discrimination and harassment incidents	Item	0	0	0
Training ratio of employees for anti discrimination and opposition to human rights violations	%	100	100	100
Number of incidents of child labor, forced labor, and human trafficking	Item	0	0	0
Vocational training input	RMB 1,000	12,908	21,041	16,150
Number of employee training	Time	1,814	1,223	1,517
Training coverage	%	100	100	100
Total training hours	Hour	1,316,073	1,867,841	1,824,085
Per capita training hours	Hour	71	104	102
Percentage of employees who regularly receive performance and career development examines	%	100	100	100
Amount invested in employee work injury insurance	RMB 1,000	37,009	26,424	25,160
Employee work injury insurance coverage rate	%	100	100	100
Amount invested in employee workplace safety liability insurance	RMB 1,000	1,106	1,091	1,081
Employee workplace safety liability insurance coverage rate	%	100	100	100
Physical examination coverage	%	100	100	100
Occupational disease frequency	%	0	0	0
Number of newly added occupational diseases	Person	0	0	0
Total investment in work safety	RMB million	137	167	155
Number of work safety accidents	NOS	0	0	0
Number of work-related deaths	Person	0	0	0

Social Indicator	Unit	2022	2023	2024
Work injury rate	%	0	0	0
Working days lost	Day	0	0	0
Lost time injury frequency rate (LTIFR)	Injury frequency rate per million hours worked	0	0	0
Lost time injury frequency rate (LTIFR) for employees	Injury frequency rate per million hours worked	0	0	0
Lost time injury frequency rate (LTIFR) for contractors	Injury frequency rate per million hours worked	0	0	0
Number of safety training	Person-times	193,985	225,891	278,983
Safety training hours	Hour	801,222	928,362	1,129,329
Safety risk prevention training coverage	%	100	100	100
Percentage of products that need to be withdrawn and recalled for safety and health reasons	%	0	0	0
Customer satisfaction	Score	98.62	98.76	98.80
Amount of damages incurred due to major safety and quality liability incidents related to products and services	RMB million	0	0	0
Total number of suppliers	NOS	3,558	3,246	3,493
Proportion of suppliers in mainland China	%	100	100	100
Total number of procurement orders on bidding procurement platform	Item	28,869	31,638	36,788
Proportion of procurement orders on bidding procurement platform	%	98.99	100	100
Number of ESG training activities for suppliers	Time	165	439	191
Total ESG training hours for suppliers	Hour	165	487	410
R&D investments	RMB 1,000	5,386,071	5,022,122	4,892,268
Proportion of R&D investment to operating revenue	%	4.56	4.41	4.52
Number of R&D staff	Person	2,342	2,481	2,396
Proportion of R&D staff	%	12.59	13.61	13.49
Proportion of R&D Personnel with a Master's Degree or Higher	%	28.61	28.21	32.22

Social Indicator	Unit	2022	2023	2024
Number of valid patents	PCS	2,955	3,570	3,924
Number of invention patents applied to core business operations	PCS	2,955	3,570	3,924
Number of software copyrights	PCS	13	13	17
Number of patents applied	PCS	894	1,219	945
Number of invention patents applied	PCS	465	737	598
Number of patents granted	PCS	654	685	405
Number of innovation patents granted	PCS	166	229	125

Governance Indicator	Unit	2022	2023	2024
Proportion of independent directors	%	56	50	50
Proportion of independent directors serving on Boards of more than 3 listed companies	%	50	25	0
Proportion of independent directors serving on Boards of more than 6 listed companies	%	0	0	0
Proportion of female directors	%	0	0	12.5
Number of board meetings	Time	11	10	8
Attendance rate of directors	%	100	100	100
Proportion of female employees in management	%	16.52	16.98	18.64
Share-proportion of senior executives	%	0.029	0.0057	0.0029
Proportion of shares pledged by major shareholders (holding 5% or more) or top 10 shareholders	%	0	0	0
Number of compliance training participants	Person	8,768	12,598	13,283
Compliance training coverage	%	47	68.87	74.45
Total time of compliance training	Hour	19,156	28,954	29,357
Proportion of employees who have received anti-bribery and anti-corruption training	%	100	100	100
Amount involved in litigation or significant administrative penalties due to the company's unfair competition practices	RMB 1,000	0	0	0

Content Index

GRI Content Index

Statement of use	Shougang Co. has reported in accordance with the GRI Standards for the period January 1st to December 31st, 2024.
GRI 1 used	GRI 1: Foundation 2021
Applicable GRI Sector Standard(s)	Non-use of GRI Sector standards.

	Disclosure	Location
GRI 2: General Disclosures 2021	2-1 Organizational details	About Us
	2-2 Entities included in the organization's sustainability reporting	About This Report
	2-3 Reporting period, frequency and contact point	About This Report
	2-4 Restatements of information	About This Report
	2-5 External assurance	—
	2-6 Activities, value chain and other business relationships	About Us, Supply Chain Security
	2-7 Employees	Employee Development
	2-8 Workers who are not employees	Occupational Health and Safety, Supply Chain Security
	2-9 Governance structure and composition	Corporate Governance
	2-10 Nomination and selection of the highest governance body	Corporate Governance
	2-11 Chair of the highest governance body	Corporate Governance
	2-12 Role of the highest governance body in overseeing the management of impacts	Corporate Governance, Sustainable Development Management
	2-13 Delegation of responsibility for managing impacts	Corporate Governance
	2-14 Role of the highest governance body in sustainability reporting	Sustainable Development Management
	2-15 Conflicts of interest	Corporate Governance
	2-16 Communication of critical concerns	Stakeholder Engagement
	2-17 Collective knowledge of the highest governance body	Sustainable Development Management

	Disclosure	Location
GRI 2: General Disclosures 2021	2-18 Evaluation of the performance of the highest governance body	Sustainable Development Management
	2-19 Remuneration policies	Employee Development
	2-20 Process to determine remuneration	Employee Development
	2-22 Statement on sustainable development strategy	Chairman's Message
	2-23 Policy commitments	Integrity Ecology, Employee Development
	2-24 Embedding policy commitments	Integrity Ecology
	2-25 Processes to remediate negative impacts	Integrity Ecology
	2-26 Mechanisms for seeking advice and raising concerns	Stakeholder Engagement, Employee Development
	2-27 Compliance with laws and regulations	Each chapter
	2-28 Membership associations	Innovation
GRI 3: Material Topics 2021	2-29 Approach to stakeholder engagement	Sustainable Development Management
	2-30 Collective bargaining agreements	Employee Development
	3-1 Process to determine material topics	Sustainable Development Management
GRI 201: Economic Performance 2016	3-2 List of material topics	Sustainable Development Management
	3-3 Management of material topics	Sustainable Development Management
	201-1 Direct economic value generated and distributed	Key Performance Indicators Form, Annual Report
	201-2 Financial implications and other risks and opportunities due to climate change	Climate Response
GRI 203: Indirect Economic Impacts 2016	201-3 Defined benefit plan obligations and other retirement plans	Employee Development
	201-4 Financial assistance received from government	Annual Report
GRI 204: Procurement Practices 2016	203-1 Infrastructure investments and services supported	About Us, Social Contributions
	203-2 Significant indirect economic impacts	Social Contributions
GRI 205: Anti-corruption 2016	204-1 Proportion of spending on local suppliers	Key Performance Indicators Form
	205-1 Operations assessed for risks related to corruption	Integrity Ecology

Disclosure			Location
GRI 205: Anti-corruption 2016	205-2	Communication and training about anti-corruption policies and procedures	Integrity Ecology
	205-3	Confirmed incidents of corruption and actions taken	Integrity Ecology
GRI 206: Anti-competitive Behavior 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Integrity Ecology
GRI 207: Tax 2019	207-1	Approach to tax	Risk Management
	207-2	Tax governance, control, and risk management	Risk Management
	207-3	Stakeholder engagement and management of concerns related to tax	Risk Management
	207-4	Country-by-country reporting	—
GRI 301: Materials 2016	301-1	Materials used by weight or volume	Resource Utilization
	301-2	Recycled input materials used	Resource Utilization
	301-3	Reclaimed products and their packaging materials	Resource Utilization
GRI 302: Energy 2016	302-1	Energy consumption within the organization	Resource Utilization
	302-2	Energy consumption outside of the organization	Resource Utilization
	302-3	Energy intensity	Key Performance Indicators Form
	302-4	Reduction of energy consumption	Resource Utilization
	302-5	Reductions in energy requirements of products and services	Resource Utilization
GRI 303: Water and Effluents 2018	303-1	Interactions with water as a shared resource	Resource Utilization
	303-2	Management of water discharge-related impacts	Resource Utilization
	303-3	Water withdrawal	Resource Utilization
	303-4	Water discharge	Resource Utilization
	303-5	Water consumption	Resource Utilization
GRI 304: Biodiversity 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity Protection
	304-2	Significant impacts of activities, products and services on biodiversity	Biodiversity Protection
	304-3	Habitats protected or restored	Biodiversity Protection

Disclosure			Location
GRI 305: Emissions 2016	305-1	Direct (Scope 1) GHG emissions	Climate Response
	305-2	Energy indirect (Scope 2) GHG emissions	Climate Response
	305-3	Other indirect (Scope 3) GHG emissions	—
	305-4	GHG emissions intensity	Climate Response
	305-5	Reduction of GHG emissions	Climate Response
	305-6	Emissions of ozone-depleting substances (ODS)	The company's production and operation activities do not generate ODS
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Environmental Management
GRI 306: Waste 2020	306-1	Waste generation and significant waste-related impacts	Environmental Management
	306-2	Management of significant waste-related impacts	Environmental Management
	306-3	Waste generated	Environmental Management
	306-4	Waste diverted from disposal	Environmental Management
	306-5	Waste directed to disposal	Environmental Management
GRI 308: Supplier Environmental Assessment 2016	308-1	New suppliers that were screened using environmental criteria	Supply Chain Security
	308-2	Negative environmental impacts in the supply chain and actions taken	Supply Chain Security
GRI 401: Employment 2016	401-1	New employee hires and employee turnover	Key Performance Indicators Form
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Employee Development
	401-3	Parental leave	Employee Development, Key Performance Indicators Form
GRI 402: Labor/Management Relations 2016	402-1	Minimum notice periods regarding operational changes	The company has no material operational changes
GRI 403: Occupational Health and Safety 2018	403-1	Occupational health and safety management system	Occupational Health and Safety
	403-2	Hazard identification, risk assessment, and incident investigation	Occupational Health and Safety
	403-3	Occupational health services	Occupational Health and Safety

Disclosure			Location
GRI 403: Occupational Health and Safety 2018	403-4	Worker participation, consultation, and communication on occupational health and safety	Occupational Health and Safety
	403-5	Worker training on occupational health and safety	Occupational Health and Safety
	403-6	Promotion of worker health	Occupational Health and Safety
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Occupational Health and Safety
	403-8	Workers covered by an occupational health and safety management system	Occupational Health and Safety
	403-9	Work-related injuries	Key Performance Indicators Form
	403-10	Work-related ill health	Occupational Health and Safety
GRI 404: Training and Education 2016	404-1	Average hours of training per year per employee	Key Performance Indicators Form
	404-2	Programs for upgrading employee skills and transition assistance programs	Employee Development
	404-3	Percentage of employees receiving regular performance and career development reviews	Employee Development
GRI 405: Diversity and Equal Opportunity 2016	405-1	Diversity of governance bodies and employees	Corporate Governance, Employee Development
GRI 406: Non-discrimination 2016	406-1	Incidents of discrimination and corrective actions taken	Employee Development
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Employee Development
GRI 408: Child Labor 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	Employee Development
GRI 409: Forced or Compulsory Labor 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Employee Development

Disclosure			Location
GRI 410: Security Practices 2016	410-1	Security personnel trained in human rights policies or procedures	—
GRI 413: Local Communities 2016	413-1	Operations with local community engagement, impact assessments, and development programs	Social Contributions
	413-2	Operations with significant actual and potential negative impacts on local communities	The company has not identified any operations that have actual or potential significant negative impacts on the local community
GRI 414: Supplier Social Assessment 2016	414-1	New suppliers that were screened using social criteria	Supply Chain Security
	414-2	Negative social impacts in the supply chain and actions taken	Supply Chain Security
GRI 416: Customer Health and Safety 2016	416-1	Assessment of the health and safety impacts of product and service categories	Product Quality and Customer Service
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Product Quality and Customer Service
GRI 417: Marketing and Labeling 2016	417-1	Requirements for product and service information and labeling	Product Quality and Customer Service
	417-2	Incidents of non-compliance concerning product and service information and labeling	Product Quality and Customer Service
	417-3	Incidents of non-compliance concerning marketing communications	Product Quality and Customer Service
GRI 418: Customer Privacy 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	Product Quality and Customer Service

Explanation of Omitted Disclosed Items for Shougang Co. is as follows:

Omitted GRI Topics	Reasons for Omission
304-4, 411-1, 415-1	The core business of the company has little relevance or importance to this index information, therefore they will not be disclosed
2-21, 202-1, 202-2, 405-2	Due to information confidentiality requirements, they will not be disclosed to the public temporarily

SDGs Index

SDGs	Brief introduction	Location
1	No Poverty: End poverty in all its forms everywhere.	Social Contributions
3	Good Health and Well-being: Ensure healthy lives and promote well-being for all at all ages.	Employee Development
4	Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	Social Contributions
5	Gender Equality: Achieve gender equality and empower all women and girls.	Employee Development
6	Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all.	Resource Utilization
7	Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all.	Resource Utilization, Climate Response
8	Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	Employee Development
9	Industry, Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	Innovation, Intelligent Manufacturing
10	Reduced Inequalities: Reduce inequality within and among countries.	Employee Development
11	Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient and sustainable.	Social Contributions
12	Responsible Consumption and Production: Ensure sustainable consumption and production patterns.	Circular Economy, Product Quality and Customer Service
13	Climate Action: Take urgent action to combat climate change and its impacts.	Climate Response
14	Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.	Biodiversity Protection
15	Life on Land: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Biodiversity Protection
16	Peace, Justice and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	Integrity Ecology
17	Partnerships for the Goals: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.	Supply Chain Security

Self-Regulatory Guidelines No. 17 for Companies Listed on Shenzhen Stock Exchange—Sustainability Report (For Trial Implementation) Topic Index

Dimension	No.	Topic	Clause	Location
Environment	1	Climate response	Articles 21-28	Climate Response
	2	Pollutant discharge	Article 30	Environmental Management
	3	Waste disposal	Article 31	Environmental Management
	4	Ecosystem and biodiversity protection	Article 32	Biodiversity Protection
	5	Environmental compliance management	Article 33	Environmental Management
	6	Energy utilization	Article 35	Resource Utilization
	7	Water resources utilization	Article 36	Resource Utilization
	8	Circular economy	Article 37	Circular Economy
Community	9	Rural revitalization	Article 39	Social Contributions
	10	Social contributions	Article 40	Social Contributions
	11	Innovation	Article 42	Innovation, Intelligent Manufacturing
	12	Ethics of science and technology	Article 43	Innovation
	13	Supply chain security	Article 45	Supply Chain Security
	14	Equal treatment of SMEs	Article 46	Supply Chain Security
	15	Product and service safety and quality	Article 47	Product Quality and Customer Service, Occupational Health and Safety
	16	Data security and customer privacy	Article 48	Data Security and Customer Privacy
	17	Employees	Article 50	Employee Development
Sustainability-related governance	18	Due diligence	Article 52	Supply Chain Security
	19	Stakeholder engagement	Article 53	Stakeholder Engagement
	20	Anti-commercial bribery and anti-corruption	Article 55	Integrity Ecology
	21	Fair competition	Article 56	Integrity Ecology

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