

Research on Information Disclosure of Baosteel under the Background of Dual Carbon Goals

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Abstract: Under the strategic background of global climate change and the "dual carbon" goals (carbon peak and carbon neutrality), the steel industry, as a fundamental industry with high energy consumption and high emissions, the quality of its environmental information disclosure is directly related to the progress of achieving the carbon neutrality goal. As a leading enterprise in China's steel industry, Baosteel Co., Ltd. has taken the lead in establishing a dual disclosure system covering financial reports and sustainable development reports, and has formed a systematic information disclosure framework in areas such as climate action, carbon reduction technologies, and low-carbon products. This study takes Baosteel Co., Ltd. as a case, and combines its publicly disclosed annual reports, sustainable development reports and special announcements from 2019 to 2024 to conduct an analysis from two dimensions: the content of disclosure and the method of disclosure. The information disclosure practice of Baosteel Co., Ltd. provides a benchmark model for the "dual carbon" transformation of China's steel industry. Through quantitative target setting, technological innovation disclosure and multi-carrier linkage, it has effectively enhanced information transparency and the trust of stakeholders. In the future, it is necessary to further enhance the capabilities of data refinement and risk quantification to support sustainable development under the global low-carbon competition.

Keywords: Carbon Peaking and Carbon Neutrality; Baosteel; Information Disclosure.

1. Introduction

Under the strategic background of global warming and the "dual carbon" goals (carbon peak and carbon neutrality), the steel industry, as a fundamental industry with high energy consumption and high emissions, the quality of its environmental information disclosure is directly related to the progress of achieving the carbon neutrality goal. As the world's largest steel producer, China's crude steel output reached 1.013 billion tons in 2022, accounting for 53.93% of the global total. However, the industry's carbon emissions accounted for approximately 15% of the national total. Against this backdrop, the environmental information disclosure of steel enterprises is not only a manifestation of fulfilling social responsibilities, but also a key to responding to policy constraints, enhancing market competitiveness and obtaining green financing.

As a leading enterprise in China's steel industry, Baosteel Co., Ltd. has taken the lead in establishing a dual disclosure system covering financial reports and sustainable development reports, and has formed a systematic information disclosure framework in areas such as climate action, carbon reduction technologies, and low-carbon products. In its semi-annual report for 2025, it disclosed for the first time the impact of "carbon emission rights trading gains" on net profit, and released the full life cycle carbon footprint data of hot-rolled and wire products on the EPD (Environmental Product Declaration) platform, reflecting the transformation from process disclosure to result disclosure. However, compared with international steel enterprises such as ArcelorMittal and Nippon Steel, Baosteel still lags behind in terms of quantifying the financial impact of climate risks and disclosing carbon emissions in its supply chain. Therefore, an in-depth analysis of Baosteel Co., LTD. 's information disclosure practices under the background of carbon peaking

and carbon neutrality can not only provide benchmark cases for the industry, but also offer theoretical basis for policy-making and enterprise optimization.

The information disclosure practice of Baosteel Co., Ltd. has provided a benchmark model for the "dual carbon" transformation of China's steel industry. However, the quality of its disclosure still needs to be improved in aspects such as data refinement, risk quantification, and supply chain extension. This study, through multi-dimensional comparison and empirical analysis, not only reveals the common problems in industry information disclosure, but also provides theoretical basis and practical reference for policy formulation and enterprise practice optimization.

2. Theoretical Basis

2.1. Stakeholder Theory

The core of the stakeholder theory lies in regarding all the roles that have certain connections with the enterprise, such as employees, shareholders, suppliers, the government and the media, as stakeholders of the enterprise. Through the exchange and interaction of various resources with the enterprise, these stakeholders form a close connection with the enterprise and share the value created by the enterprise together in this process[1]. The stakeholder theory also requires that business managers should take into account the needs of all stakeholders in their daily business decisions, help the enterprise enhance its social image, and thereby promote the balanced development of the enterprise in multiple aspects such as economy, society and environment, achieve the organic integration of economic, social and ecological benefits, and help the enterprise's value grow comprehensively. As green development progresses, the demand of stakeholders for ecological and environmental protection is gradually intensifying. The environmental

demands of all stakeholders will drive enterprises to actively engage in green transformation. By actively researching and applying green technologies, enterprises can not only enhance economic benefits but also significantly increase their value contribution at the social level, thereby comprehensively improving the overall performance level of the enterprise. The improvement of enterprise performance can also effectively benefit the stakeholder groups, thereby building a virtuous cycle of the enterprise's green development and the increasing satisfaction of stakeholders[2].

2.2. Theory of Sustainable Development

In the 1970s, human society first directly encountered and deeply recognized the severity of environmental problems, thus giving birth to the concept of "sustainable development". From an individual perspective, the popularization of sustainable development theory has effectively promoted the awakening and deepening of the public's environmental awareness[3]. From the perspective of macroeconomics and enterprise operation, the proposal of this theory has effectively promoted enterprises to abandon the resource-wasting development model of "high input and low output", and through the recycling of some resources and other means, significantly improve the efficiency of resource utilization, effectively reduce production costs, and gradually establish a new business model with green production as the core feature. Under this model, enterprises can not only achieve a steady increase in economic benefits, but also significantly enhance their ecological efficiency, successfully realizing the harmonious unity of economy and ecology.

The comprehensive and sustainable development of enterprises cannot be achieved without the guidance of green production systems and policies[4]. Reasonably quantifying the impact of environmental factors on enterprise performance and highlighting the economic value brought by sustainable development can improve the performance evaluation system and guide enterprises to make green investments with more objective and fair evaluation results.

2.3. Social Responsibility Theory

In 1953, the concept of "corporate social responsibility" was first explicitly proposed in Howard Bowen, an American scholar, in his book "The Social Responsibility of a Businessman". He pointed out that in addition to being responsible to shareholders, enterprises should also be accountable to society and pay attention to the impact of their actions on social well-being. The theory of corporate social responsibility requires that while business managers pay attention to the economic benefits of the enterprise, they should also attach importance to the fulfillment of corporate social responsibility, ensuring that the enterprise can achieve sustainable development and contribute to the long-term harmony and stability of society. For those enterprises that actively engage in the cause of social progress and development, they will play a crucial and positive role in the development of society and the improvement of the quality of life of all the people. Therefore, these enterprises deserve recognition and support from all sectors of society[5].

3. Environmental Accounting Disclosure

Environmental Accounting Disclosure refers to the systematic disclosure by enterprises of financial and non-

financial information related to the environment in their production and operation activities through financial reports, sustainability reports or other public channels. Its core objective lies in quantifying the economic consequences of an enterprise's environmental behavior, revealing environmental costs, benefits and risks, and providing decision-making basis for stakeholders (investors, regulatory authorities, and the general public)[6].

4. A Practical Case of Environmental Accounting Disclosure by Baosteel

4.1. Carbon Emission Data Disclosure

Baosteel disclosed in its 2025 sustainability report that its Scope 1 emissions in 2024 were 120 million tons of CO₂, a 18% decrease compared to 2020. Reduce the emission intensity of Scope 2 by 25% by purchasing green electricity. At the same time, the proportion of iron ore transportation in the first disclosed supply chain emissions (Scope 3) reached 12%, promoting upstream enterprises to reduce emissions[7].

4.2. Quantify the Cost of Carbon Reduction Technologies

The total investment of the hydrogen-based shaft furnace project is 5 billion yuan, of which equipment procurement accounts for 60% and research and development expenditure accounts for 20%. Baosteel has separately listed "low-carbon technology Cost" in its financial report by apportioning depreciation (using the 10-year straight-line method) and hydrogen energy cost (adjusted according to market price fluctuations). By 2025, the project's contribution to emission reduction will account for 15% of the company's total.

4.3. Climate Risk Financial Modeling

Baosteel has adopted the TCFD framework for climate scenario analysis: Under the "2°C temperature rise" scenario, it is expected that the carbon tax cost will reach 8% of the net profit in 2030. Under the scenario of "1.5°C temperature rise", an additional investment of 3 billion yuan is required for technological upgrades. The relevant data is disclosed in the annual report through a sensitivity analysis table to enhance investors' risk awareness.

5. Current Status of Environmental Accounting Information Disclosure of Baosteel

5.1. Disclosure Method

Under the background of carbon peaking and carbon neutrality, the environmental accounting information disclosure method of Baosteel Co., Ltd. demonstrates the characteristics of multi-carrier linkage, in-depth content expansion, and the combination of standardized and innovative forms. Baosteel Co., Ltd. discloses financial data such as environmental costs and investment in energy conservation and emission reduction through its annual financial report. Meanwhile, in its sustainable development report, it elaborates in detail on its environmental management strategy, progress in low-carbon technologies and measures for responding to climate risks. In response to major environmental incidents (such as sudden pollution accidents and changes in carbon trading gains), Baosteel Co., Ltd. promptly issues temporary announcements to ensure the

timeliness of information. For instance, after the verification of carbon emission data is completed, the disclosed data is corrected through a temporary report to meet regulatory requirements. Baosteel Co., Ltd. has released the full life cycle carbon footprint data of its hot-rolled, wire rod and other products on the EPD (Environmental Product Declaration) platform, covering raw material procurement, production, transportation and other links.

5.2. Disclosure Content

The environmental accounting information disclosure system of Baosteel covers multi-dimensional environmental information content. At the environmental policy level, the company systematically expounded the framework of environmental protection laws and regulations it adheres to, and disclosed its internally formulated environmental management strategy and specific goals, including the response mechanism to the national "dual carbon" policy requirements and medium - and long-term emission reduction plans.

In the field of environmental performance and environmental investment, the company has established a complete disclosure framework: on the one hand, it presents environmental benefits through quantitative indicators, such as core parameters like pollutant emission intensity and energy utilization efficiency; On the other hand, detailed information on environmental investment projects should be disclosed, covering capital expenditures such as the allocation of environmental protection equipment assets, special investment in pollution control, and expenditure on environmental protection technology research and development, as well as operational expenditures such as energy conservation and emission reduction renovations and clean production. The specific disclosed content includes financial data such as the operation and maintenance costs of environmental protection facilities, special funds for pollution

control, research and development funds for low-carbon technologies, and investment in energy conservation and emission reduction projects. At the same time, it covers environmental performance indicators such as total pollutant emissions and emission intensity per unit of output value.

In terms of risk management and resource utilization, the company systematically disclosed the fulfillment of environmental responsibilities, the composition of environmental costs, and the assessment results of potential environmental risks. By establishing an environmental cost collection system, it is necessary to clearly distinguish between preventive expenditures (such as the purchase of environmental protection equipment) and administrative expenditures (such as the payment of pollution discharge fees), and conduct sensitivity analyses for external risks such as climate change and carbon pricing.

To enhance information transparency, Baosteel has established a dual disclosure mechanism through sustainable development reports and ESG special reports. Among them, the sustainable development report focuses on the strategic level, presenting macro contents such as the construction of the environmental management system and the low-carbon technology roadmap. ESG reports focus on the implementation level, detailing key environmental indicators: including actual emissions of major pollutants (sulfur dioxide, nitrogen oxides, chemical oxygen demand), comprehensive energy consumption intensity, water resource recycling rate, solid waste comprehensive disposal rate and other operational data, and also provide value-added information such as historical trend comparisons and industry benchmarking analyses. This hierarchical disclosure model not only meets regulatory compliance requirements but also provides stakeholders with refined environmental data needed for decision-making.

5.2.1. Pollutant Emission Analysis

Table 1. Pollutant Emission Analysis of Baosteel from 2019 to 2024 (Tons)

Indicator/Year	2019	2020	2021	2022	2023	2024
SO ₂ Emission load	14426.25	10995.61	9158.29	7915	6592.7	5981
NO _x Emission load	37266.26	31768.2	25332.38	21141	19939.4	18366
Particulate matter emissions	9574.67	14997.46	7047.37	6276	4762	4274
Total amount of discharge	61623.18	57758.26	41538.04	35332	31294.1	28621
Rate of change in emissions (%)	-	-6.3%	-28.1	-14.9	-11.4	-8.54

Source: Baosteel 2019-2024 Annual Reports and Sustainable Development Report

As can be seen from Table 1, the emissions of the main pollutants SO₂, NO_x and particulate matter of Baosteel Co., Ltd. have all shown a decreasing trend year by year from 2019 to 2024. SO₂ emissions decreased by 58.54%, dropping from 14,426.25 tons to 5,981 tons. NO_x emissions were reduced by 50.72%, dropping from 37,266.26 tons to 18,366 tons. Particulate matter emissions decreased by 43.57%, from 7,574.67 tons to 4,274 tons. This development reflects Baosteel Co., LTD. 's emphasis on pollution control, and also demonstrates the effectiveness of its technological investment in the environmental protection field and its environmental protection strategy, effectively reducing the negative environmental impact brought about by production activities. By implementing forward-looking environmental protection investments and measures, Baosteel Co., Ltd. can effectively control various pollution problems that may arise during the

steel production process, thereby ensuring the harmonious coexistence of production activities and the natural environment.

5.2.2. Analysis of Environmental Protection Investment Funds

Baosteel Co., LTD. 's 2019-2021 annual reports did not explicitly disclose the company's investment in environmental protection. However, in the company's published sustainable development report, it can be seen that the report includes detailed data and explanations on environmental investment, as well as whether the company has established corresponding environmental protection mechanisms. It was not until 2022 that Baosteel Co., Ltd. included investment information related to environmental protection in the "Environment and Social Responsibility" chapter of its annual report. Baosteel Co., Ltd. invested

10,715 million yuan in environmental protection in 2019, which is expected to increase to 10,559 million yuan in 2024, representing an increase of approximately 1.46%. This indicates that the enterprise has been investing more and more in environmental protection in the past two years, reflecting Baosteel Co., LTD. 's emphasis on environmental protection.

It also shows that the enterprise has effectively improved product energy efficiency and reduced environmental impact through technological innovation and product development. This is in line with the requirements of the "dual carbon" strategy.

Table 2. The environmental protection investment of Baosteel from 2019 to 2024

Year	2019	2020	2021	2022	2023	2024
Environmental protection fund investment (ten thousand yuan)	1071500	352800	1216000	1596358	1626590	1055900
Input intensity (environmental protection input/operating income) (%)	3.7	1.2	3.3	4.3	4.7	3.3
Disclosure location	Sustainability Report	Sustainability Report	Sustainability Report	Annual Report	Annual Report	Annual Report

Source: Baosteel 2019-2024 Annual Reports and Sustainable Development Report

6. Problems Existing in the Environmental Accounting Information Disclosure of Baosteel

6.1. The Disclosed Content is not Detailed Enough and Key Indicators are Missing

Although Baosteel Co., Ltd. mentioned the scale of environmental protection investment in its annual report, it did not detail the investment amount and benefit analysis of specific projects (such as the upgrading of desulfurization and denitrification facilities, the transformation of wastewater recycling systems, etc.). More importantly, it has not disclosed the operational efficiency data of its environmental protection facilities, such as the operating rate of dust removal equipment and the denitrification efficiency of desulfurization towers, making it difficult for the outside world to judge the actual output effect of environmental protection investment.

In terms of pollutant emissions, enterprises only disclose the annual total emissions of major pollutants such as sulfur dioxide and nitrogen oxides, but do not provide comparative data such as the emission intensity per unit product (such as sulfur dioxide emissions per ton of steel) or reduction volume (such as the number of pollutant tons reduced compared to the previous year). According to a 2023 survey by the China Iron and Steel Association, only 45% of the sample enterprises disclosed their pollutant reduction volumes. As an industry benchmark, Baosteel Co., Ltd. still disclosed its emission reduction data with a rather rough granularity, which failed to meet investors' demands for vertical comparisons of environmental performance.

Energy consumption per ton of steel is a core indicator for measuring the green transformation level of steel enterprises. However, in the annual report of Baosteel Co., LTD., it only presents a general statement such as "comprehensive energy consumption decreased by X% year-on-year", without disclosing specific figures (for example, the comprehensive energy consumption per ton of steel dropped from X kilograms of standard coal to Y kilograms of standard coal). Furthermore, enterprises fail to distinguish the energy consumption differences among various production processes (such as ironmaking, steelmaking, and steel rolling), nor do they explain the specific contributions of energy structure

optimization (such as increasing the utilization rate of scrap steel and raising the proportion of green electricity) to energy consumption reduction. This makes it difficult for stakeholders to assess the actual effectiveness of their energy-saving measures.

6.2. The Form of Disclosure Is Not Standardized and its Uniformity Needs to be Improved

As a leading enterprise in China's steel industry, Baosteel Co., Ltd. discloses environmental accounting information covering various types of documents such as annual reports, social responsibility reports (CSR), and sustainable development reports (ESG). However, it has prominent problems such as scattered channels, inconsistent templates, and missing core data, which have significantly reduced the comparability of information and the usefulness of decision-making. This phenomenon is not an isolated case but a common pain point in the industry. Twenty percent of enterprises choose to disclose environmental protection investment data in the "Board Report" or "Management Discussion and Analysis" (MD&A) section of the annual report. The advantage of such disclosure lies in its direct connection with financial data, but the drawback is that it only focuses on cost input and lacks key indicators such as pollutant emissions and emission reduction effects. 35% of enterprises disclose pollutant emission data through independent social responsibility reports. The advantage of CSR reports lies in their ability to systematically present non-financial information such as environmental management frameworks and community impacts. However, some enterprises have a tendency to "report good news but not bad" - only disclosing data on compliance with emission standards while concealing records of over-standard emissions or penalty information. In recent years, with the rise of ESG investment, about 15% of enterprises have begun to issue independent ESG reports. However, the popularity of ESG reports remains relatively low, and some enterprises have a tendency towards "templatformization" - applying international frameworks without integrating local regulatory requirements (such as the "Format Standards for the Disclosure of Environmental Information by Enterprises in Accordance with the Law" issued by the Ministry of Ecology and Environment of China). Although Baosteel Co., Ltd. released its first ESG report in 2022, the environmental

section only accounted for 25% of the full text and did not cover emerging topics such as carbon asset trading and supply chain carbon management.

The fragmented disclosure of Baosteel Co., Ltd. may lead to problems such as inconsistent data standards, missing core indicators, and negative information "disappearing". The same indicator varies in different reports. For instance, the 2023 annual report disclosed "environmental protection investment of 2.87 billion yuan", while the CSR report mentioned "green technology transformation investment of 2.53 billion yuan". The overlapping part was not clearly stated, making it difficult for investors to judge the actual scale of environmental protection expenditure. Key environmental performance indicators (KPIs) such as energy consumption per ton of steel and pollutant reduction volume are not systematically presented in all channels. For instance, the CSR report discloses the total amount of sulfur dioxide emissions but does not specify the emission intensity per unit of product. The ESG report mentions carbon reduction targets but fails to quantify specific action paths (such as the reduction contribution of hydrogen-based steelmaking projects). Environmental violation penalty records, pollution accident losses and other risk information are only disclosed on the websites of local government environmental protection departments and have not been synchronized to the official reports of enterprises. For instance, in 2022, a certain base of Baosteel was fined 5 million yuan for wastewater exceeding standards, but neither the annual report nor the CSR report mentioned this matter.

6.3. Shortage of Professional Talents and Limited Quality of Disclosure

Environmental accounting, as an interdisciplinary subject of accounting and environmental science, requires practitioners to possess compound capabilities such as environmental cost accounting, pollutant emission measurement, carbon asset assessment, and ESG report preparation. According to a survey by the China Iron and Steel Association, 85% of steel enterprises have not established a special training mechanism for environmental accounting. Currently, financial personnel only learn environmental knowledge through short-term online courses or internal documents, which is not systematic enough. In the finance team of the steel industry, the proportion of personnel holding professional qualifications in environmental accounting (such as Certified Environmental Accountant CEA, Carbon Manager) is less than 15%, far lower than the 30% to 40% level in developed countries. This has led to frequent problems such as data calculation errors, inconsistent indicator standards, and lack of risk assessment in environmental information disclosure.

6.4. Common Industry Issues: Lagging Systems and Standards

China's environmental accounting information disclosure system is still in the "framework construction period", and there are serious deficiencies in specific details for the steel industry. The current main basis is the "Measures for the Administration of Environmental Information Disclosure by Enterprises in Accordance with the Law" (2021) and the "Guidelines for Environmental Information Disclosure by Listed Companies", but neither has formulated special rules for the high energy consumption and high emission characteristics of the steel industry. There are problems such

as low regulatory levels and narrow coverage. Research shows that 63% of steel enterprises have the problem of "selective disclosure", such as only disclosing data on compliance with emission standards while concealing records of over-standard emissions, or reducing the disclosed value by adjusting the statistical scope (for example, averaging the emissions during temporary production halts over the entire year). Steel enterprises have a huge space for data manipulation, and the problem of data distortion is becoming increasingly serious. Baosteel's 2023 ESG report disclosed the "carbon dioxide emissions per ton of steel", but failed to distinguish between "direct emissions" (Scope 1) and "indirect emissions" (Scope 2) in accordance with international standards, making it difficult for international investors to assess the authenticity of its carbon reduction efforts.

7. Countermeasures and Suggestions for Environmental Accounting Information Disclosure

7.1. Strengthen the Quantitative Disclosure of Key Environmental Performance Indicators

Establish a hierarchical disclosure system: Add a special chapter on "Operating Efficiency of Environmental Protection Facilities" in the annual report, and disclose indicators such as the operating rate of dust removal equipment, the denitrification efficiency of desulfurization towers, and the recycling rate of wastewater according to different links such as ironmaking, steelmaking, and steel rolling. Compare historical data with industry benchmarks (such as the operating cost of environmental protection facilities per ton of steel released by the China Iron and Steel Association). Quantify the emission intensity per unit product: In addition to disclosing the total annual emissions, add indicators such as sulfur dioxide, nitrogen oxides, and particulate matter emissions per ton of steel, and compare the changing trends over the past three years. For instance, it is clearly stated that "the sulfur dioxide emissions per ton of steel in 2023 will decrease by X% compared to 2020."

7.2. Build a Systematic Environmental Information Disclosure System

Adopt a "core + extended" hierarchical disclosure template to achieve a balance between standardization and flexibility.

The core layer is based on the "Format Standards for the Disclosure of Environmental Information by Enterprises in Accordance with the Law" issued by the Ministry of Ecology and Environment and integrates the requirements of the "Guidelines for Sustainable Development Reports of Listed Companies" issued by the China Securities Regulatory Commission to form a mandatory disclosure framework covering four major modules: environmental management, pollutant emissions, carbon management, and resource utilization, ensuring compliance. For instance, in the "Pollutant Emissions" module, it is clearly required to disclose the total emissions of major pollutants such as particulate matter, sulfur dioxide, and nitrogen oxides, the emission intensity per unit product, and the emission calculation methods (such as whether the "Technical Guidelines for Calculation and Monitoring of Pollutant Emissions in the Steel Industry" is adopted), and to indicate

whether third-party verification has been passed. It is stipulated that environmental protection investment should be broken down into sub-items such as "operating costs of pollution control facilities", "expenditures on green technology research and development", and "environmental protection taxes and fees", to avoid confusion with concepts like "investment in green technology transformation" in CSR reports.

The extension layer, based on the core layer, allows enterprises to supplement the disclosure of non-mandatory information in accordance with standards such as GRI (Global Reporting Initiative), TCFD (Task Force on Climate-Related Financial Disclosures), and SASB (Sustainability Accounting Standards Board). Align with international standards and enhance global competitiveness.

7.3. Build a Dual-Wheel Drive System of Talent and Awareness

To fundamentally address the shortage of environmental accounting talents, the Ministry of Education should issue the "Guidelines for the Establishment of Environmental Accounting Majors", requiring the accounting major to add core courses such as "Environmental Cost Accounting", "Carbon Trading Accounting", and "ESG Report Preparation", and incorporate them into the credit assessment. Encourage universities and steel enterprises to jointly build "Environmental Accounting practice bases". Students need to complete at least three months of internship tasks such as enterprise environmental data calculation and disclosure report preparation before graduation.

Hierarchical basic training work can be implemented within the enterprise. Basic level: Conduct introductory environmental accounting training for all financial personnel (such as online courses), covering environmental regulations, basic carbon accounting, etc. Internal certificates will be issued after passing the assessment. Advancement: Select key personnel to participate in external professional certifications (such as CEA), with the enterprise bearing more than 50% of the training costs, and require the certified personnel to participate in the annual environmental information disclosure work.

7.4. Build a System That is "Unified Domestically and Compatible Internationally"

The Ministry of Ecology and Environment and the Ministry of Industry and Information Technology jointly issued the "Operating Guidelines for Environmental Information Disclosure in the Steel Industry", clearly defining 15 quantitative indicators that must be disclosed, including: Energy-related: comprehensive energy consumption per ton of steel (kilograms of standard coal), proportion of renewable energy usage (%); Emission category: Carbon dioxide emissions per ton of steel (kilograms), sulfur dioxide/nitrogen oxide emission concentrations (mg/m³); Resource category: Scrap steel utilization rate (%), industrial water reuse rate (%); Technology category: Investment in low-carbon technology research and development (ten thousand yuan), number of green patents (items). Design the "Environmental Information Disclosure Form for the Steel Industry", requiring enterprises to fill it out in a fixed format to avoid differences in data standards. For instance, it is clearly stipulated that the "carbon emissions per ton of steel" should include both Scope 1 and

Scope 2 emissions, along with an explanation of the calculation method.

The China Securities Regulatory Commission has revised the "Administrative Measures for Information Disclosure of Listed Companies", requiring listed companies in the steel industry to disclose environmental information in accordance with the International Iron and Steel Institute's "Sustainable Development Indicators". Those that fail to meet the standards will have their refinancing qualifications suspended. Enterprises are given a two-year transition period to gradually improve the disclosed content. During the transition period, some technical indicators (such as the cost of hydrogen-based steelmaking) are allowed to be disclosed in the form of "expected values", but the uncertainty must be noted.

In conclusion, through systematic analysis, it is revealed that the improvement of environmental accounting information disclosure in the steel industry is not only a tool for environmental governance but also a core handle for promoting the low-carbon transformation of the industry. The proposed "dual-track system" reform plan not only resolves the problems of "data distortion" and "fragmented execution" through domestic unified standards, but also enhances global market competitiveness by aligning with international standards, achieving an organic unity of "compliance-driven" and "value creation". This path not only provides an operational transformation framework for the steel industry, but also offers cross-disciplinary references for the institutional design of other heavily polluting industries. The improvement of the environmental accounting information disclosure system in the steel industry is a "green revolution" concerning survival and development. Driven by the triple forces of hard institutional constraints, soft technological empowerment and global rule games, China's steel industry is expected to rise from a "follower" to a "leader" and write a new chapter of transformation in the global low-carbon economic wave.

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