



Sustainable Development Report of 2018 of Bengang Steel Plates Co., Ltd.

(Report Period: January 1, 2018 – December 31, 2018)



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Manager's Message

2018 in retrospect

In 2018, Bengang Steel Plates persisted in taking Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era as the guiding thought, further studied and carried out the spirit of 19th National Congress of the Communist Party of China, and adhered to the general principle of pursuing progress while ensuring stability, further studied and carried out the new development concept, and complied with the requirements of high quality development. Under the strong support of the supply-side structural reform of the Party Central Committee and the considerable improvement of the steel market, the company seized the strategic development opportunities, implemented the policy of obtaining the benefit from the output and quality of products, optimized the production organization model, strengthened the management and control of the process and achieves the good results, and the company entered a good state of sustained and stable development. When reviewing the works in the whole year, they are embodied as follows:

I. Go all out to improve the quality and increase benefit; the quality of development of the enterprise is improved obviously, the records of production are rewritten continuously, the engineering projects are proceeding more efficiently, the product development scores the great successes, and the influence of brand is extended continuously.

II. Actively promote the efficiency, enhance the overall operation level of enterprise and accelerate the overall progress of the enterprise. Effectively reduce the procurement costs and optimize the procurement management mode. Make the products increase more profit, and vigorously promote e-commerce sales. Further promote the capital operation and optimize the capital layout.

III. Firmly and unshakably deepen the reform, vigorously promote the "four fix (post, number, duties and salary)" work, improve the post performance management system of all the workers and staff and the performance evaluation method of the workers and staff. Resolutely rectify the work style, set up two levels of "service hotline for workers and staff" and broaden and optimize the channels of public opinion and petition.

IV. Continually consolidate the management foundation, improve the management and governance system of the company, and actively create the peaceful and safe Bengang Steel Plates and the green and environmental protection Bengang Steel Plates, and the propaganda and trade union work achieve great successes, and the work of the construction of the Party conduct and of an honest and clean government is carried out smoothly.

The economic indicators realized in the whole year are as follows: business income: 50.1 billion Yuan; and the annual output of products: pig iron: 8,480 thousand tons, crude steel: 8,950 thousand tons, hot rolled steel plate: 11,480 thousand tons, cold rolled steel plate: 5,600 thousand tons, and special steel products: 680 thousand tons; the comprehensive energy consumption per ton of steel in the whole year: 629 kg standard coal, which is 2.63% lower than that of last year. The safety in production: there is not any serious accident involving casualties, fire accident and equipment accident in the whole year.

In the whole year, the research and development investment rate: 2.22%, the new product sales rate: 46.45%; the number of patent applications: 200, among them, the proportion of patent of invention: 49.5%. And in the whole year, the fixed asset investment: 3.924 billion Yuan.

The driving factors of main performance are as follows: around the working procedure improvement, product structure adjustment and energy saving and emission reduction, speed up the construction of transformation projects of key projects. After No. 5 blast furnace for steel plate products is examined and repaired in 77 days, it is only one time to successfully start the furnace. The task to examine and repair the new No.1 blast furnace for steel plate products is finished 7 days ahead of time, which sets the several historical records in the domestic same type of blast furnace transformation construction. The plates and special steel factory discusses and starts the construction of the function improvement transformation project of the blooming area, is based on the high-quality development requirements, and promotes the transformation and upgrading. The company newly increases 56 certification brands of automobile plate, obtains the certifications of Benz company and BMW company for automobile plate, and the products successfully used by the first-class automobile manufacturers in the world such as Ford, Fiat, Renault and so on, which clearly indicates that the company has the qualification, credentials and capacity to provide the first-class automotive companies in the world with the products, and this has the milestone significance. In addition, Bengang Steel Plates raises the funds of 4 billion Yuan through the



non-public financing, and it is first time for the company to realize the second financing in the capital market in 20 years since it was listed.

In 2018, in order to meet the new requirements of the environmental protection of the state, the company clearly defined and specified the responsibility in the environmental protection work, and by taking several measures such as further guaranteeing the stable operation of environmental protection facilities and the discharge of pollutants after they stably conform to the standard, and improving the automatic online monitoring facilities and so on, the company seriously carried out the second general investigation and check work of pollution sources, the work to apply and receive the iron and steel industry pollutant discharge permit, the work of verification of carbon emission, and the work of environmental assessment and environmental acceptance of the construction projects, and achieved the goal: the pollutants discharging in the positions, in which the pollutants were produced, could be controlled, and completed the work of meeting the requirements of reexamination of the environmental protection supervision group of the Party Central Committee.

Prospects for the year of 2019

In 2019, Bengang Steel Plates will adhere to the general principle of pursuing progress while ensuring stability, fully carry out all the decisions and plans of the provincial Party committee and provincial government, and the year of 2019 will be the important year for the company to promote the sustainable, stable and healthy development.

◎ Overall work ideas in 2019

Fully implement the spirit of the important speeches of General Secretary Xi Jinping during inspected Liaoning Province and at the symposium on further promoting the revitalization of the Northeast China, adhere to taking the supply-side structural reform as the main line, follow and carry out the high-quality development requirements, consistently implement the new development concept and the "four efforts" and "three advances", unshakably deepen the reform and seize the opportunities for innovation and breakthroughs, and exert all our strength to build a first-class enterprise with the greater competitiveness in the world.

◎ General objective of production and operation in 2019

Work hard for producing: pig iron: 10,000,000 tons, crude steel: 10,140,000 tons, hot-rolled steel plate: 11,780,000 tons, cold-rolled plate: 5,950,000 tons, special steel products: 700,000 tons. With regard to the safety in production, make great efforts to achieving the goal: there will not be any fatal accident, accident involving heavy casualties and serious fire accident.

◎ Focal point of work in 2019

(1) Take the reform of the institutional mechanism as a breakthrough point, further stimulate the vitality of enterprises. First, actively promote the reform mixed ownership reform and promote the institutional innovation. Second, speed up the implementation of various reform measures that takes the "four fix (post, number, duties and salary)" as the core.

(2) Optimize the market layout. Actively participate in the "the Belt and Road Initiative" construction, continue to widely recommend and introduce the brand of Bengang Steel Plates in the international market. In the domestic market, optimize the scheme of market resources putting on the market, increase the market share in the high-priced regions. Actively participate in the second round of the opening of the stock ownership (equity) of Ouyeel company to the public, accelerate the pace of online sales of products, and strive to promote business mode innovation.

(3) Continuously optimize the resource allocation and promote the structural adjustment. Around the annual operating target and the planning target of this group company in 2020 for producing the annual output of steel of 20 million tons, carry out the new round of large-scale technological transformation, which takes the following key projects as its representative: the technological transformation of energy saving and environmental protection of blast furnace, technological transformation of upgrade and update of special steel electric furnace, advanced treatment and reuse of wastewater, the project of desulphydrylation of coke-oven gas, and ultralow discharging adaptability technological transformation and so on, and propel the enterprise to realize the high-quality, green and environmental-protection, and intelligent development.

(4) Deepen innovation-driven development and continuously improve technical innovation ability. Work hard for the projects: "the quality improvement and tackling of key problems of



cold-rolled, hot galvanized automotive surface plate", "quality control and tackling of key problems of ultra-wide cold-rolled plate" and so on, carry out the research and development of hot galvanized phase transformation induction plastic steel, make greater efforts to carrying out the research and development and the promotion and application in the market of car gear steel. Speed up the scientific and technological innovation system construction and the reform of scientific and technological system, increase the research and development efficiency. Utilize the social resources and scientific and technological policies, promote the cooperation and innovation together with the colleges and universities, scientific research institutions, governments, social institutions, upstream and downstream users and the enterprises in the same trade as well as all the departments in this enterprise to enhance the level of technological innovation and the ability of sustainable development.

(5) Further do the work of exploiting the potentialities of saving energy according to the relevant advanced international standard, and continuously promote the optimization and promotion of the process. First, strengthen the top-level design, further improve the management system and business processes, improve the market-oriented internal governance and control mechanism. Second, around the whole industrial chain and management chain, establish the scientific and complete work system of comparing the energy consumption condition with the advanced international standard, make overall plans to improve the work of cutting the cost of system and technology, research the low-cost process and technology, and enhance the efficiency of the system operation. Third, continuously optimize the process of purchasing by invitation to bid, gradually make the process to cover all the ranges. Continuously improve the management of suppliers, reduce the intermediate merchant by a wide margin, and further improve the work of making purchases by selecting opportunity and cutting the procurement costs by rationally utilizing some measures such as utilizing the price adjustment window period and carrying out scientific analysis and prejudgment and so on.

(6) Further promote the specialized management and control, and establish the scientific and rational management and control system. Continue to adhere to the principle of giving priority to the output, take the guarantee of supply and the output, the increase of electricity generation capacity, water source management and the process control as the focal point, take the implementation of the ultralow discharge policy of iron and steel industry as the core, follow and meet the requirements of environmental protection supervision group of the Party Central Committee, and continuously promote the construction of ecological civilization. Take the intellectualization, greening (environmental protection), refinement and high-end product and technology as the main direction of work, and promote the upgrade of product quality. Around the target of "intelligent manufacturing, intelligent equipment and intelligent operation" of Bengang Steel Plates, further concretely carry out the project of the informatization development plan.

(7) Stick to implement the strategy of using the talents to strengthen the enterprise, attract the excellent talents to come to Benxi Steel Group Corporation to start an undertaking. Continue to further carry out the program of career of college graduates, and further implement the "green apple" talent selection and training plan and the academic leader of professional studies and top-notch talents selection plan. Continue to do a good work in MBA training course and the training for rotating posts, and continuously select and foster the high-quality young management and professional technical reserve talents.

(8) Strengthen the capital operation. Further widen the financing channels, make every effort to reduce the cost of financing of the enterprise, and coordinate with the investment banks and other financial institutions in the issuance of bonds of Benxi Steel Group. Continue to promote the overseas debt issuance project of Benxi Steel Group, and actively promote the work of changing the newly increased debt to the equity.

(9) Solve the problems in the people's livelihood, and conscientiously and effectively solve the most concerned, most direct and most realistic interest problems of workers and staff. Adhere to the principle of making the income growth of workers and staff suited to the economic benefits of enterprises, and establish a mechanism for the wage growth of workers and staff; raise the standard of per capita physical examination expenses; and speed up the work of rebuilding and extending the sky (three-dimensional) parking lots and providing the service of buses; establish the "four-in-one" mode of labour emulation drive, technological innovation, skills competition and technical training, fully improve the technical quality of workers and staff; give full play to the function of "hotline for serving the workers and staff", improve the system of safeguarding the legitimate rights and interests of workers and staff; increase the efforts to help the difficult workers, and do a good job for all the workers and staff to take a rest cure. Strengthen the construction of literary and art facilities and the sports fields and gymnasiums, in order to make the workers and staff have the more substantial, more guaranteed and more sustainable sense of gain, feeling of happiness and sense of security.



II. With regard to this report

> Solemn promise

The board of directors and all the directors of this company guarantee that there is not any false record, misleading statement or important omission in the content of this report, and shoulder the individual and joint liability for the truthfulness, accuracy and completeness of the content of this report.

> Report period

This report discloses the information in the period from January 1, 2018 to December 31, 2018, and a part of contents appropriately trace back to other years.

> Scope of report

This report mainly describes the activities in the economic, environmental and social work of Bengang Steel Plates Co., Ltd. The "Bengang", "Plates Company" and "Company" appeared in the following paragraph are the abbreviation for Bengang Steel Plates Co., Ltd., and this is no longer repeated.

The RMB Yuan (CNY) is taken as the unit for the financial data in this report.

> Reference standard

General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China and Standardization Administration:

GB/T 36001-2015 Guidance on social responsibility reporting

Global Reporting Initiative (GRI): Sustainability Reporting Guidelines (G4)

Chinese Academy of Social Sciences: Guidance on Compiling the Social Responsibility Reporting of Chinese Enterprises (CASS-CSR3.0)

> Form of issuing report

This report has two editions: Chinese edition and English edition, which is issued in the forms of printing and electronic versions, and the electronic version can be found on the website of Bengang Steel Plates Co., Ltd.: <http://www.bxsteel.cn>. In case of any ambiguity between Chinese and English, the Chinese edition shall prevail.

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III. General situation of company

3.1 Present Situation of company

Bengang Steel Plates Co., Ltd. (hereinafter referred to as “Bengang Steel Plates”) is located in Benxi City, Liaoning Province and is a state-owned holding listed company with the core business of iron and steel (Stock code: 000761, 200761), which belongs to Benxi Steel Group Corporation. In 1997, by approved by Liaoning Provincial People’s Government (LZ (1997) No. 57 Document), Benxi Steel Group Corporation restructured the assets and liabilities of the steel plates business of the steel mill, rough rolling mill and hot continuous rolling mill, which is owned by Benxi Steel Group, and set up the Bengang Steel Plates Co., Ltd. on June 27, 1997. Its registered capital is 3.875 billion Yuan. In this company, there are 15 functional departments, 5 units directly under this company and 14 production factories and mines. At the end of year of 2018, the total assets are 59.632 billion Yuan, the fixed assets are 22.035 billion Yuan, the net assets is 19.659 billion Yuan, and there are 18,436 employed workers and staff.

Bengang Steel Plates is the super-huge type integrated iron and steel works that integrate the iron-smelting, steel-smelting and steel rolling, have the 4,747-cubic meter blast furnace, which is the largest blast furnace in volume in the north-east China, 2300-model hot continuous rolling assembling unit that is broadest in width in the world and the most advanced cold rolling production line in the world, and the whole iron and steel technologies and equipment of the company come up to advanced world standards, and the annual productive capacity of high-quality steel products of the company is up to: pig iron: 10,000,000 tons, crude steel: 12,500,000 tons, hot rolling steel products: 13,000,000 tons, cold-roll steel products: 6,400,000 tons and special steel products: 1,100,000 tons.

Bengang Steel Plates has 1 national-level technical center, 2 state-level physical and chemical testing laboratories and post-doctoral research workstations, academicians and experts workstation, and focus on improving the scientific research and product development level of the company. Relying on state-level scientific research institutions, the company comes up to advanced domestic standards in the research and development of automotive plates, home appliance plates, steel for petroleum pipeline and the plates for container, and has established the product system with high-tech content and high value-added, which takes the products of the steel for automotive, home appliance, pipeline, container and high-end equipment as well as the special steel as the leading products. The company adheres to the market demand-oriented, taking the product structure adjustment as the main line and taking the customer requirements as the center, continuously innovates the business mode, implements the coordinated, orderly and highly efficient production management, improves the product quality, and the company maintains the production and sales rate of 100% all along. The products of the company are widely used in many domestic key industries: automotive, home appliances, building, petrochemical, communications and transportation, defense and military industry, high-end equipment, energy and environmental protection and other key industries, and exported to all over the world, and the export volume of products ranks among the first in the national steel industry. Bengang Steel Plates provides a solid foundation for the product quality assurance and the scientific development of the company by establishing the standardized management system such as the quality management system, the environmental management system, the energy management system, the occupational health and safety management system, management system of integration of information technology and industrialization, and the international standard system of automotive plates.

As a listed company to which the public pays close attention, Bengang Steel Plates always adheres to the concept of green development and harmonious development, adheres to taking the safety, environmental protection, energy conservation and humanistic development as an important component part of enterprise development, and realizes the objective of making the workers and staff and the society share the development results while strengthening the economic operation of the company. In the future, Bengang Steel Plates will seize the historical opportunity to speed up the adjustment and transformation of the old industrial base in Northeast China, shoulder the sacred mission of using the iron and steel strength to support a happy life, provide the most valuable quality products and good service to the society and the public, and make greater contributions to the development of the iron and steel industry of the country and the



nation.

3.2 The condition of controlling shareholder and actual controllers

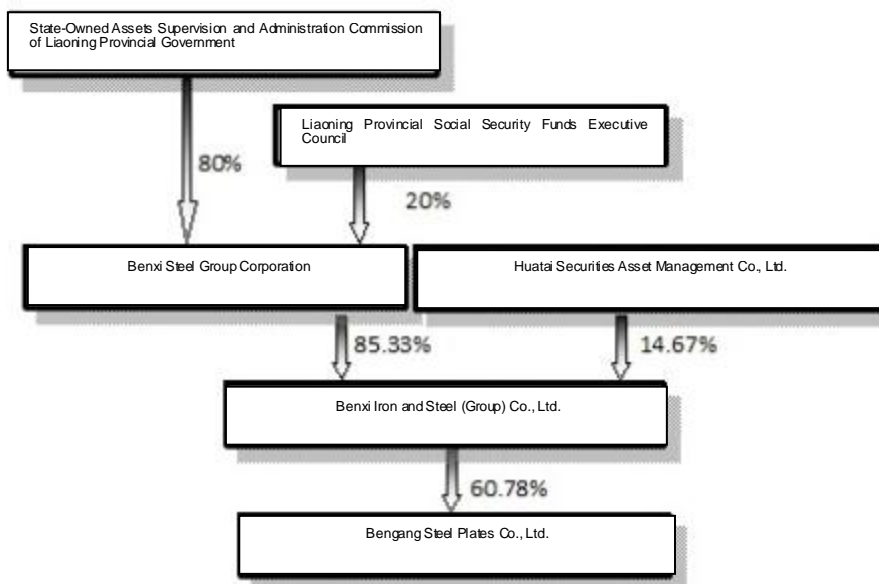
Name of company	Benxi Iron and Steel (Group) Corporation
Legal representative	Yang Chengguang
Date of establishment	July 10, 1996
Enterprise organization code	91210500119726263U
Core business	The iron and steel smelting, mining, plates rolling, pipe making, power generation, special section steels, heating supply, water, electricity, air and gas supply, metal processing, machines and electrical equipment repair and manufacturing, equipment manufacturing, building and installation, railway and highway transport, import and export trade, tourism, accommodation, catering and entertainment services; printing, newspapers and periodicals distribution, building materials, fireproof materials, measuring instrument and meters, material supply and marketing, real estate development, scientific research, design, information services, property management, communications, scrap steel purchase, processing and sales, housing and civil air-defense construction leasing, steel products regulation, waste oil purchase (the above items are limited for the operation of branch companies), assets management, "Bengang Daily" publishing; printed advertisements design and making, use our own "Bengang Daily" to issue domestic and foreign advertisements, design and make the television advertisement.

- Condition of actual controller

The actual controller of this company is State-owned Assets Supervision and Administration Commission of Liaoning Provincial Government.

- The change condition of controlling shareholder and actual controller

The controlling shareholder and actual controller of the company are not changed within the report period.



- Other corporate Shareholders who held the shares of more than 10% of total shares

There is no other corporate shareholder who holds the shares of more than 10% of total



shares in this company at the end of the report period.

- The nature of shareholder's ownership

The local state-owned holdings.

- The change condition of capital stock

See the annual financial statement of the company for the capital stock change condition of company is available, which is not repeated again here.

3.3 Business indicators

By the end of year of 2018, the main product data and business income are as follows:

Unit: 0.1 billion Yuan

Item	In 2018	In 2017
I. Total operating revenues	501.82	405.08
II. Total operating costs	490.71	385.88
Among them: Operating costs	452.44	356.78
Sales expense	11.35	11.84
Management expense	9.16	8.45
Financial expenses	13.76	5.36
Asset impairment losses	0.37	1.04
Income on investment	0.05	0.04
III. Operating profits	12.02	19.67
IV. Total profit;	10.54	19.16



IV. Corporate governance

4.1 Management of sustainable development

The company uses the culture strength of the enterprise to propel the enterprise to enhance competitiveness and sustainable development. The company adheres to systematically do the work of culture construction of enterprise, adheres to having the core concept of corporate culture: taking "People oriented, people unity, constant improving and striving for stronger" as the core values, taking "using the iron and steel strength to support a happy life " as the mission of enterprise, taking "honoring credibility, mutual benefit and win-win" as the business philosophy, and taking "excellent value creator and happiness maker" as the vision of enterprise, and use it to establish the enterprise's culture system.

Corporate culture concept system

Classification	Description
Mission	Using the iron and steel strength to support the happy life.
Vision (prospects)	Outstanding value creator and happiness make.
Core values	People oriented, people unity, constant improving and striving for stronger
Enterprise spirit	Innovation, strive for better change, constantly strive to become stronger
Safety concept	I can work safely and happily.
Quality concept	Meet the requirements of customers, provide the customers with the high quality products always
Business concept	Take the honesty and trust as the foundations, benefit each other and achieve an all-win result
Talent concept	Respect the talents, use the people and talents to the best advantage.
Management concept	Always Keep improving, rigorously enforce rules and regulations, pay attention to the actual results
Tenet of workers and staff	Work hard and keep improving.

In "13th Five-Year Plan" period, the company puts forward the development mode of adhering to innovation driving and "quality products + service", strives for making the main business of iron and steel more competitive and higher in quality, and clearly establishes the strategic objective: "build Bengang Steel Plates into the high quality plates production base with high competitiveness, domestic first-class special steel production base and integrated service provider, as well as the high-end, intelligent and green steel enterprise."

4.2 Guarantee of sustainable development System

◎ Integrated management system

In the daily production and operation, Bengang Steel Plates strictly follows the world's highest management system standards, takes the relevant provisions of the system as the criterion, follows the international practice, optimizes the management, and improve the efficiency. The company obtains the certification of following international systems: the quality management, environmental management, occupational health and safety management, energy management, information management, measurement management, laboratory management and other external system certification.



Classification of system	Name of system
Quality management system	ISO9001
	IATF16949:2016
Environmental management system	ISO14001
Occupational health and safety management system	OHSAS18001
Energy management system	ISO50001(GB/T23331)
Informatization management system	"Integration of informatization and industrialization management systems - Requirements"
Measurement management system	ISO10012:2003
Laboratory management system	ISO/IEC17025

◎ Supervisory and internal supervision system of the company

Bengang Steel Plates continues to promote the construction of the internal supervision system, and further improves the multi-level and all-round supervision system, such as the board of directors, the board of supervisors, the audit system, the financial system, the legal supervision, the discipline committee's supervision, etc. By strengthening the system supervision and regulation, process supervision, special supervision, and supervision check and evaluation, the company strengthens the day-to-day management of the internal supervision system, timely tracks the "Three-important and one-large" issues (important decision, important cadre appointing and removing, important project arranging and large amounts of funds using) and the major risk matters, gives the following documents to subordinates: "Interim Measures for the Supervision and Inspection Work of Tour Inspection Institution" and "Management Measures for the Responsibility Ascertaining and Investigation of Leading Cadres (Provisional)", and makes greater efforts for the supervision and responsibility ascertaining and ensures the smooth operation of the internal supervision system.

4.3 Organization governance

◎ Organization structure

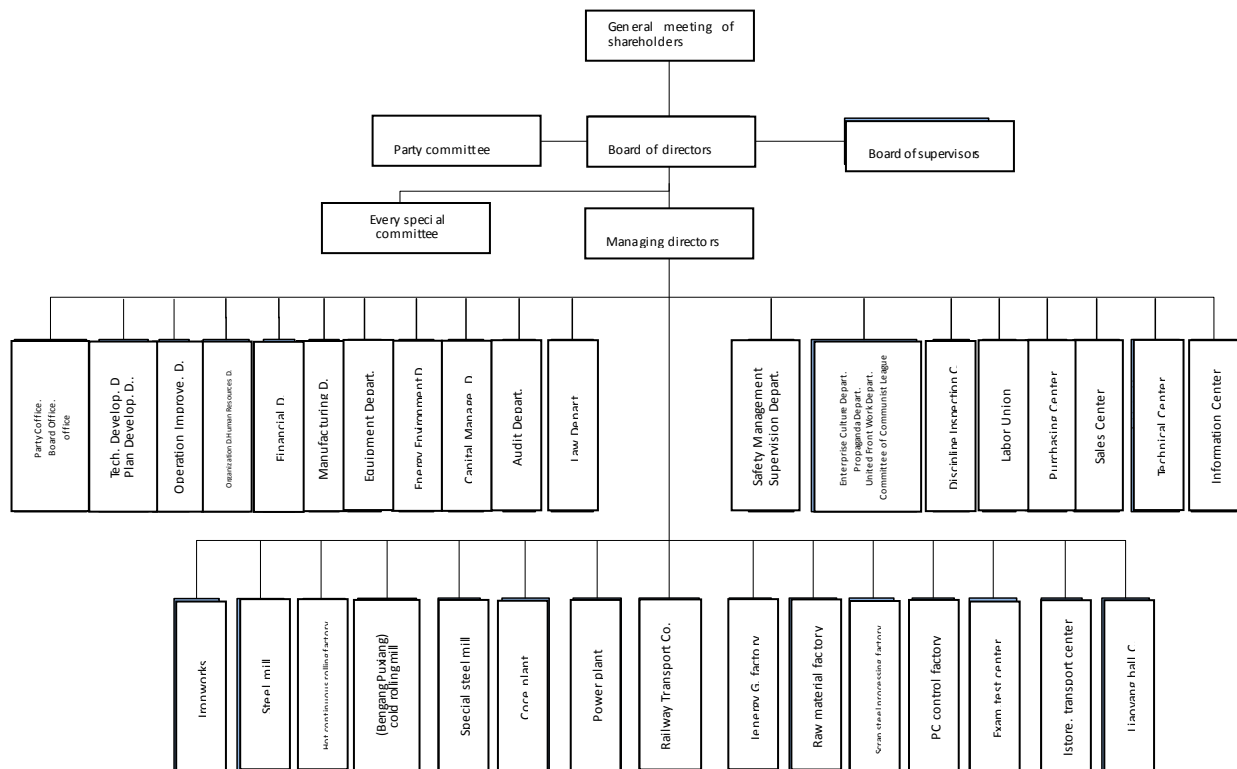
The company has formulated various rules and regulations, such as the "Articles of Association", "Rules of Procedure of the General Meeting of Shareholders", "Rules of Procedure of Board of Directors", "Rules of Procedure of the Board of Supervisors" and "System of Work of Independent Directors" strictly according to the requirements of the relevant laws and regulations of "Company Law", "Securities Law", "Guidelines for the Governance of Listed Companies", and the relevant provisions of the China Securities Regulatory Commission, which clarify the duties, competence, procedures and obligations to be fulfilled of the general meeting of shareholders, the board of directors, the board of supervisors and the managing directors in all aspects of decision-making, implementation and supervision, and form the governance structure of the scientific division of labor, letting each person or organization perform its own functions and effective checking and balancing of the organs of power, policy-making bodies, supervisory institutions and operation institutions.

The board of directors is composed of 7 persons, including 1 chairman of the board of directors and 3 independent directors. The board of directors has four special committees, namely, Strategy Committee, Salary and Assessment Committee, Nomination Committee and Audit Committee, and one of the independent directors of Audit Committee is an accounting professional. The special committees hold themselves responsible to the Board of Directors and the motions of the special committees are submitted to the Board of Directors for review and decision. The company's institutional arrangement provides a full guarantee for the independent directors and special committees to play their roles. The Board of Supervisors is composed of 5



persons, of whom 2 persons are the representatives of the workers and staff and the supervisors. The members of the Board of Supervisors shall perform their supervisory duties in accordance with “Company Law”, “Articles of Association” and the authorization of the General Meeting of Shareholders.

The managing directors are in charge of organizing to implement the resolutions of the general meeting of shareholders and the board of directors, take charge of production, operation and management of the company and are in charge of organizing to lead the day-to-day operation of the internal control of the company.



◎ Condition of holding the general meeting of shareholders

The company adheres to selecting the appropriate time and place to hold a general meeting of shareholders from the point of view of shareholders' rights and interests and in accordance with the relevant provisions, and to choose the appropriate time and place to hold a general meeting of shareholders, and timely notify the shareholders. All the general meetings of shareholders adopt the voting method of combining the voting on the meeting site with the online voting to ensure that the shareholders exercise their rights.

In 2018, the Company held a general meeting in which 13 motions, including “Report of Board of Directors in 2017”, “Annual Report and Summary in 2017”, and “Profit Distribution Reserve Plan in 2017” and so on were reviewed and adopted.

◎ Condition of disclosure of information

The company fulfills the obligation of information disclosure strictly in accordance with the relevant laws and regulations and the relevant provisions of Shenzhen Stock Exchange and Hong Kong Stock Exchange. The company establishes the normal internal verification procedure of



information disclosure, continuously improves the efficiency and quality of information disclosure, and guarantees the authenticity, accuracy, completeness, timeliness and fairness of information disclosure. Through China Securities News, Securities Times, Hong Kong Commercial Daily, Juchao Information Network and Hong Kong Stock Exchange's website, the Company truly and detailedly has disclosed its operating performance and important matters to investors. In 2018, the Company disclosed four periodic reports and 47 interim announcements.

◎ Condition of profit distribution

The company attaches great importance to the return of investment to shareholders and has formulated a long-term and stable profit distribution policy. On May 24, 2018, the Company's shareholders' meeting reviewed and adopted the profit distribution plan in 2017, the earning per share in 2017 is \$0.413, and the cash bonus distributed per 10 shares is \$0.50 and the proportion of cash dividends is approximately 18%.

On July 11, 2018, the Company distributed the cash bonus to all the shareholders, and total distributed cash bonus was 194 million Yuan.

◎ condition of communicating with investors

The company has formulated "Measures for the Administration of Investor Relations" to regulate the work of contact and communication between the company and investors. In 2018, the company communicated with the investors on the issues such as the development prospects of the industry, the production and operation state and so on, and transmitted the value information of the company. In addition, through some forms such as answering the questions of the investors through the interactive platform, setting up the dedicated telephone to provide consulting services to the investors and so on, the company communicated with the investors, answered questions of the investors, which guaranteed the smooth communication between the company and investors. The company strictly complies with the requirements of "Guidelines for Fair Information Disclosure of Listed Companies", and the issues of communication and exchange are based on the content declared by the company.

◎ Protection of investors and stakeholders

The company conscientiously and effectively protects investors and related stakeholders:

> In the aspect of protection of shareholders' interests, the company formulates "Measures for the Administration of Investor Relations" to steer the management of investor relations on the path of institutionalization and standardization.

> In the aspect of protection of the interest of workers and staff, the company adheres to the principle of making the income growth of workers and staff suit to the economic benefit of the enterprise, establishes the wage growth mechanism for the workers and staff, and let the results of the reform benefit the workers and staff; establish an environmental/occupational health and safety management system to ensure the safety and health of the workers and staff.

> In the aspect of protection of supplier's interest, the company establishes some management systems, such as formulating "Supplier Management Measures" and "Measures for the Administration of Tendering and Procurement" and so on, and implements the "transparent purchase"; the company establishes the long-term strategic cooperative partnership with the suppliers and improves the benefit-sharing and risk-sharing mechanism.

> In the aspect of protection of customer's interest, the company adheres to the marketing concept of serving the customers whole-heartedly, meets the demands of customers, aims at the long-term interests of both sides and builds the long-term strategic partnership with the customers.



> In the aspect of protection of social interest, the company actively shoulders the social responsibility and pays the taxes in accordance with the law, develops the circular economy, promotes the energy conservation and emission reduction, promotes the low-carbon development, improves the environmental/occupational health and safety management system, and establishes the safety and environmental protection goals.

4.4 Competitiveness of enterprise

In 2018, in order to carry out the national industrial revitalization and development policy, Bengang Steel Plates took deepening the reform of state-owned enterprise and technological innovation as the main line, carried out the all-round, fully systematical and “being reborn” type transformation to all the main production process chains. In the period from 2018 to 2020, Bengang Steel Plates will start and complete the construction of technological transformation projects in the aspects of product variety structure adjustment, new materials research and development, green and intelligent manufacturing, capacity replacement and so on, and the estimated total investment of the project will be 19.2 billion Yuan, which will enhance the core competitiveness of enterprise and propel the company to promote the high-quality, green and intelligent development of the enterprise.

◎ Input of the enterprise

> In 2018, the company focused on the key core links such as the product variety quality, equipment upgrading, cost control and process and technology, continuously enhanced the product competitiveness, the capacity of the enterprise to earn profits and the process and technology strength of the enterprise, and implemented 36 major technological transformation projects, and actually completed the investment of 3.924 billion Yuan.

> In 2018, the company's investment rate in research and development was 2.22%, the sales rate of new products was 46.45%, the sales volume of new products was 5.5968 million tons, and there were 4 provincial science and technology awards and 200 patent applications.

> In 2018, the company speeded up the environmental protection governance and upgrading of environmental protection equipment, and invested 2.309 billion Yuan to implement the energy conservation and emission reduction projects construction.

◎ Promoting the scientific and technological progress

Closely around the works in the aspects of the research and development of product varieties, product certification, tackling key problems in the scientific research, foreign cooperation, obtaining the supporting of the national policies, research and development platform construction, scientific and technological achievements, intellectual property rights and so on, Bengang Steel Plates actively promoted the scientific and technological progress, took the improving of the independent innovation ability as the goal, and took the improving of innovation input, operation and incentive mechanism as the focal point of work, promoted the industrial upgrading and product variety restructuring, comprehensively enhanced the technological innovation capabilities and market competitiveness, and promoted the sustainable development.

(1) Condition of patent

In 2018, the company applied 200 domestic patents, among them, there were 99 patents of invention, whose proportion in invention was 49.5%, 45 applied patents were granted the domestic patent right, among them, 20 patents were the patents of invention to be granted, there were 2 international patent applications, and in the layout of international patent applications, the company carried out continuous and advanced patent layout to the high-strength steel for the third-generation automotive plate.



Example

The patent innovation capacity of Bengang Steel Plates has been affirmed

On August 15, 2018, according to “Notice of the State Intellectual Property Office on Determining the State Intellectual Property Demonstration Enterprises and the Superior Enterprises in 2018” (GZFGH ZI [2018] No. 158), Bengang Steel Plates Co., Ltd. was recognized



as "State Intellectual Property Superior Enterprise" by the State Intellectual Property Office.

(2) Condition of winning the prize

> There were four Liaoning Provincial Science and Technology Progress Awards: "Innovation and Application of Key Technology of Whole Process of High-Quality Boron-Containing Steel" and "Research and Development of 800 MPa-Level High-Forming Hot-Rolled Acid Washing Plate for the Automotive" projects won the second prizes, "Research and Development of Anti-Process Sensitivity Cold-Rolled Two-Phase Steel Serial Products" and "Function of A New Type of Venturi High-Efficiency Reaction Desulfurization Device" projects won the third prizes.

> There was one Science and Technology Progress Award of China Automotive Industry: "Development and Application of the Lightweight Set of Technology of Steel Wheel of Automotive" won the third prize.

> There were 39 Science and Technology Progress Award: including "Research and Development and Application of Process and Technology of Slag Stopping by Converter Slide Plate" and "Research and Development of Ultra High Strength Hot Stamping Steel" that won the first prize, 12 projects such as "Research of Rolling Process of 2300 Model Unit of Hot-Rolled Acid-Washing Plate for Automotive Exported to the European Union" and so on that won the second prize, and 25 projects that won the third prize.

(3) Technology innovation system

Bengang Steel Plates introduced the supplier early intervention service (EVI) mechanism, established the technical innovation system that took the market as the guidance, took the enterprise as the main player, and had the deep integration of enterprises, colleges and research institutes, helped the customers shorten the research and development time, optimize the performance, reduce the costs, and met the customer's needs for characteristics.

Now Bengang Steel Plates has the national-level technical center, the national-level physical and chemical testing laboratory and the postdoctoral research station, the academician and expert workstation, the Bengang Steel Plates-Northeastern University-Brilliance Auto joint laboratory, Liaoning Province professional technology innovation platform of advanced high-strength steel for automotive, Bengang Steel Plates has joined the China Pipeline Research Organization (CPRO), Automotive Lightweight Technology Innovation Strategic Alliance, Strategic Alliance of Technological Innovation of Corrosion-Resistant Steel Industry, China Society of Automotive Engineers, Metallurgy Mineral Resources Efficient Development Industry Technology Innovation Strategy Alliance, Liaoning Provincial Industrial Internet Industry Alliance, and Liaoning Provincial Industrial Solid Waste Resources Utilization Industrial Technology Innovation Strategic Alliance. By relying on the specialized laboratories, technology alliances and national-level scientific research institutions, Bengang Steel Plates trains and hires large numbers of high-level scientific and technological innovation talents, forms a number of research and development and technical service teams having the strategic vision, innovative thinking and industrialization research experience, forcefully increases the scientific research and product development level of the enterprise and enhances the core competitiveness of the enterprise.



Example

Obtain several development results of frontier products

Bengang Steel Plates, Northeastern University, Brilliance Automobile jointly set up a joint laboratory of steel for automotive, and obtain gratifying achievements. The joint laboratory has completed the research and development work of several new products and tackles the key technical problems of several new products and makes the new breakthrough in the motorcycle type project cooperation. They include the development of frontier varieties such as the 1800 MPa level, 1500 MPa level hot compacting steel, cold-rolled dual-phase steel DP980, 800 MPa level hot-rolled acid-washing plate, as well as the cooperation results of white automobile body lightweight EVI, the automotive part weight reduction, reverse engineering analysis and so on. The research and development and application projects of 2GPa hot stamping steel serial products has a great impact in the industry, and wins the "lightweight excellent design award - excellent award" of Automotive Lightweight Innovation Strategy Alliance.



◎ Products with wide influence

(1) Ecological design of product

Bengang Steel Plates takes the development of green and high efficient steel products as the goal, adheres to the concept of "using the iron and steel strength to support a happy life", comprehensively considers the relevant ecological environment issues in the product development stage, and closely considers the ecological, human health and safety, reduces the resource consumption and promotes the sustainable development in the entire life cycle of the acquisition, production, distribution and sales, use and disposal of raw material.

(2) Market direction

In order to conform to the lightweighting development trend of the automotive industry, Bengang Steel Plates makes great efforts to develop DP dual-phase steel, TRIP steel, QP quenching and partitioning steel and so on, which are the advanced high strength steel varieties that are sold well and earn the higher profit in the market, and forms the high value-added product series such as the broad automotive panel products, alloyed automotive plate, galvanized automotive plate and so on; in order to adapt to the household electrical appliances upgrading and updating, the development trend of products toward the high-end product, and the energy-saving and environmental protection development direction, Bengang Steel Plates vigorously develop the high-strength, thin specifications, broad in width, green and environmental-protection household electrical appliances plates; the market share of high-grade X100 pipeline steel and high-strength container plate increases continuously.

(3) Manufacturing the green and environmental-protection steel products

The Company adheres to the differentiation new products development path, uses the innovative products and service to continuously meet and guide the market's current and potential demands, and lead the industry's technological progress:

> The environmental-protection fingerprint-resistance galvanized products of Bengang Steel Plates and the production know-how of the environmental-protection fingerprint-resistance products of Bengang Steel Plates with the independent intellectual property rights have won several patent right. The technology level of the products has come up to advanced world standards, and the mass production and application of these products has been started every early, which are used to replace the imported similar products, in the period of 2015-2018, the created economic benefits is 112.1806 million Yuan, which successfully achieves the following goal: this product is produced stably in large quantities and fills in the gaps in this kind of product of Bengang Steel Plates and even Liaoning Province.

> The high-strength hot galvanized two-phase steel has a number of advantages: the excellent mechanical properties and surface corrosion resistance, and this product is used widely in the automotive safety parts, and the largest quantity demanded in the market at present is the hot galvanizing 600 MPa level dual-phase steel, and this product is widely used in the automotive reinforced structural parts. At present, Bengang Steel Plates produces the DP 590+Z hot galvanized two-phase steel of more than 1,300 tons every month, which has become the competitive products in the automotive plate of Bengang Steel Plates.

> The 1500MPa-level hot forming steel products of 1.0 mm - 6.5 mm in full thickness, jointly developed by Bengang Steel Plates and Northeastern University, can be used for the automotive anti-collision parts and the automotive chassis parts in the whole vehicle, among them, the industrialization application of the 1500 Mpa level hot forming steel products with the extremely thick specification is realized only in Bengang Steel Plates in China, and the tensile strength of this product reaches 1400 to 1500 MPa, and the elongation rate is more than 6%, which comes up to advanced world standards. Bengang Steel Plates utilizes its own equipment advantages and technical advantages to successfully tackle key technical problems in the stable production of hot forming steel of 1.0 mm - 6.5 mm in full thickness, which makes Bengang Steel Plates become one of a few domestic enterprises with the stable supply capacity in the large batches. The research and development of 1500 MPa strength level hot-forming steel of more than 2.5 mm in thickness is extremely difficult, and it is needed to solve the following problems: the insufficient cooling speed of heart part of the steel product with extremely thick specifications makes the final



product have a uneven structure, and makes the performance of product not conform to the standard. Bengang Steel Plates and Northeastern University jointly carry out the development of this technology, and they make full use of the theoretical advantages of university as well as the equipment and technical advantages of the iron and steel enterprise and successfully realize the research and development, production and application of 1500 Mpa level hot forming steel products of 1.0 mm - 6.5 mm in full thickness, which extends the use thickness of hot forming steel to the extremely thick specification of 6.5mm, and this project is obviously advanced and innovative.

> With regard to the various types of titanium alloyed high-strength steel (Q345B\BG450C\BG550C\510L\700L) produced by Bengang Steel Plates, because of the good economical efficiency of ferrotitanium, and comparing to Nb, V microalloying technology, the Ti microalloying technology has a lower cost, therefore, in recent years, Ti's fine grain size strengthening and precipitation strengthening effect has been paid attention to, and as a single microalloy element to be added, Ti is widely used in Shandong Xingmin Steel Ring Co., Ltd., Qilu Automobile Wheel Co., Ltd., Shenzhen Zhongji Special Vehicle Co., Ltd., Dalian CIMC Railway Equipment Co., Ltd, Shenyang Jinfa Wheels Co., Ltd., Dalian Jindo Container Co., Ltd., Jining Junda Machinery Manufacturing Co., Ltd., Shanghai Shunye Iron and Steel Group Co., Ltd. and so on, and the product win a lot of favourable comments, and creates a win-win situation in the aspects of performance, quality and cost.

> With regard to the cold-rolled low alloy high-strength steel serial products, Bengang Steel Plates has began to research and develop this steel product since the year of 2007, and at present, Bengang Steel Plates has the capacity of providing the product in the large batches. In the period from 2016 to 2018, the cold-rolled low alloy high-strength steel serial products of adding up to 205,000 tons are sold, which makes Bengang Steel Plates obtain the economic benefit of adding up to 184.5 million Yuan, and this product is mainly supplied to the following automobile manufacturers: Shanghai General Motor, FAW (First Auto Work), Brilliance, SAIC, Chery and GAC and so on, and all the indicators of this product are the same as the those of actual products of the domestic and foreign advanced enterprises, and this product is in the lead in the same industry, and win a lot of favourable comments and recognition of the users in the course of use of users.

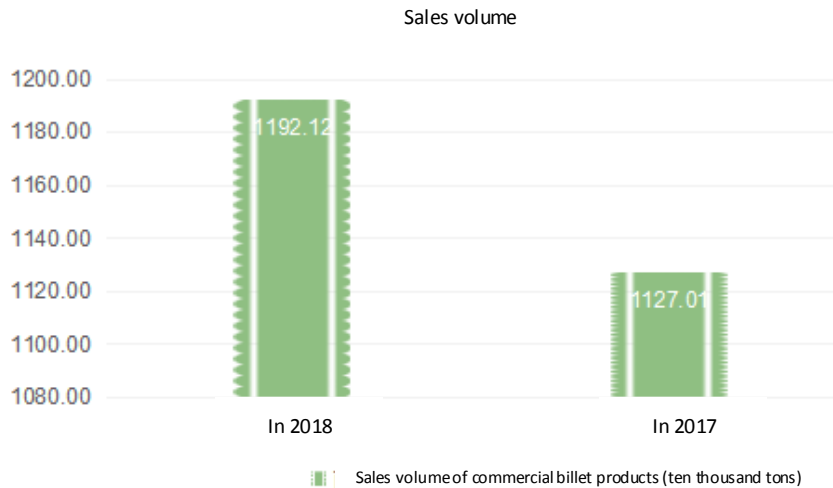
4.5 The economic value to be created and distributed

◎ Business income and business costs

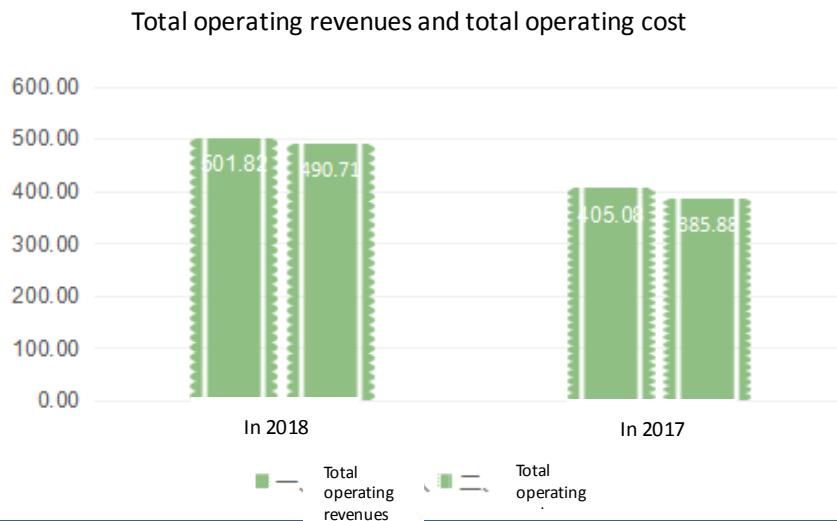
Since 2018, due to the joint effect of following factors: the further development of supply-side structural reforms, the greatly increasing demands of the steel market, the stricter supervision and examination of environmental protection and so on, the steel supply and demand pattern has been further improved, the prices of steel products become higher, and the prices of imported iron ore are stable. In 2018, the output of domestic crude steel was 928 million tons, and the benefit of the whole industry reached the best level in history.

In 2018, the average annual composite price index of the (domestic) steel products in China was 115.92, which increased by 7.7% more than the average annual composite price index of 107.61 in 2017, and at the same time, the annual average price of iron ore Platts index of 62% reduced by 2.6% as compared with the price in last year.

The volume of sales of commodity billet steel products of the company in the last two years is shown in the following figure:



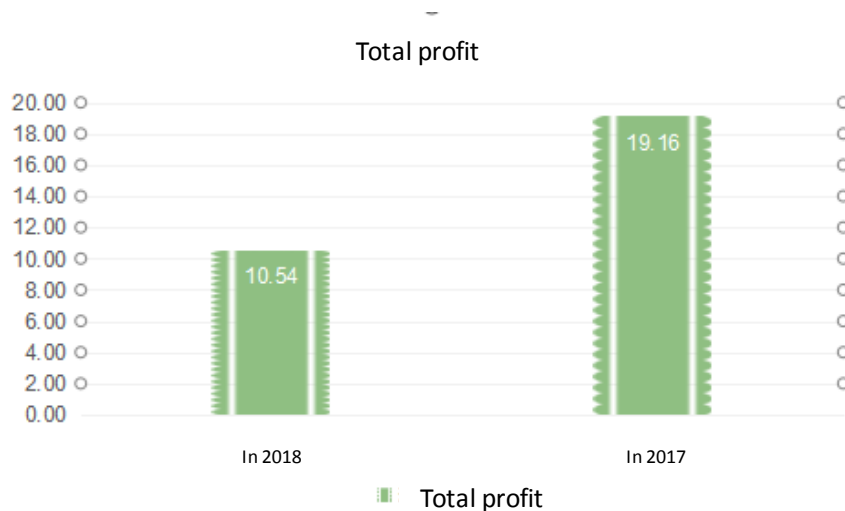
The total operating revenues and total operating costs of the company in the last two years are shown in the following figure:



© Profit

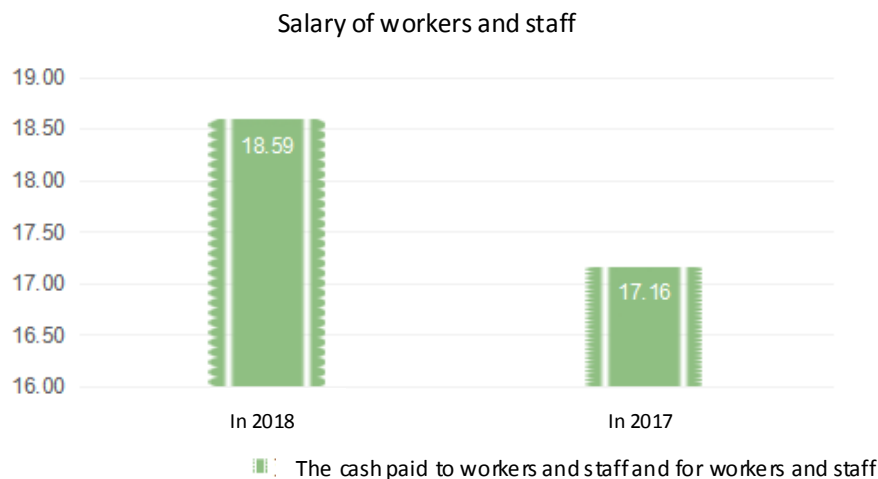
In 2018, the company faced such situation: all the blast furnaces were stopped for overhaul, and at the same time, the company was affected by the foreign currency exchange rates, therefore the total annual profit was 1,054 million Yuan, which was reduced by 862 million Yuan as compared with the total annual profit in 2017, or 44.99%.

The total profits of the company in the last two years are shown in the following figure:



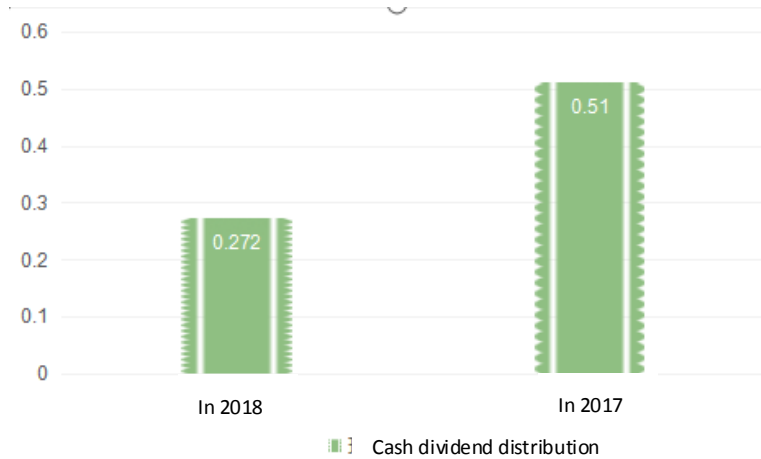
◎ Salary of workers and staff

In 2018, the company paid 1,859 million Yuan in cash to the workers and staff and for the workers and staff. The condition in the last two years is shown in the following figure:



◎ Retained earnings and dividend distribution

The profit distribution reserve plan of the company in 2018: by audited by BDO China Shu Lun Pan Certified Public Accountants LLP (special general partnership), the net profit of the company attributable to the parent company in 2018 was 1,036,493,236.07 Yuan, plus the undistributed profit at the beginning of the year of 1,103,162,610.35 Yuan, and then deduct the dividend actually distributed of 1,945,887,269.82 Yuan in the last year, the balance of undistributed profit this time is 1,945,887,269.82 Yuan. The profit distribution reserve plan in 2018 is: take the company's existing capital stock of 3,875,371,532 shares as the base, distribute and pay the cash bonus of 0.5 Yuan every 10 shares (including tax) to all the shareholders, and this time, it is planned to distribute the dividend of ordinary shares of 193,768,576.60 Yuan.

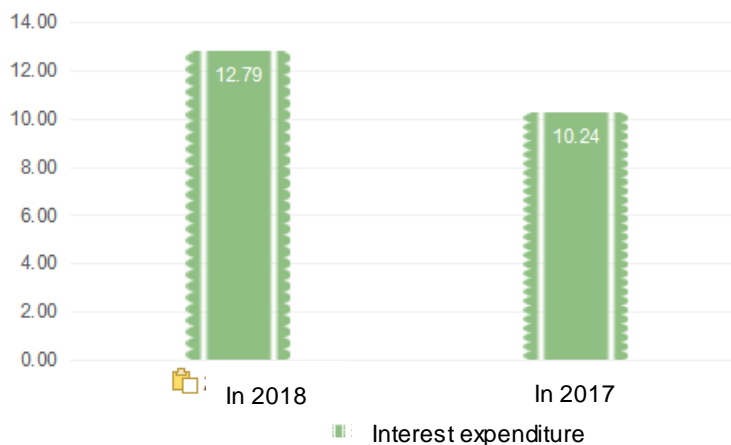


© The supplier of capital

The company actively responds to the changes in the financial environment, expands direct financing channels, studies and judges the interest rates and exchange rate trends and continues to carry out the debt restructuring optimization scheme. In 2018, in an environment of tightening liquidity, the company fully utilized the lower interest rates of domestic Renminbi (RMB) to reduce the financing costs, guaranteed that the company used the lower cost for financing and fostered a good and healthy company image in the financing market. The company reasonably distributed the short-term idle funds for the operation, guaranteed that the funds were coherent, and used the lower cost to smoothly complete the works of the dividends being large in sum, debenture redemption when it expires, the exchange of currency for financing and so on.

In the aspect of risk management, Bengang Steel Plates quickly responds to interaction, takes the decisive measures, draws up the reserve plan, adopts the tactics, pays attention to the change trend and controls the exchange rate management cost within the bearable range in the course of quick Renminbi depreciation in the middle of the year. By implementing the long-term management and control mechanism of operating the capital, the company controls its operation funds at a reasonable level, and avoids the risk of price fluctuations and capital occupation risk. The company further explores and improves the commodity hedging system, increases the capacity of price risk management. The company selects the cooperative financial institutions according to the comprehensive conditions such as the credit state of financial institutions, the business strength and the public credibility in the market, and fully coordinates cooperative relations with financial institutions. The company always pays attention to the development of cooperative relations between the bank and the enterprise, and at present, the company has signed the bank and enterprise cooperation agreement, the whole credit extension agreement and the borrowing and paying back at any time agreement, etc. with the major commercial banks, which guarantees the financing channels and financing prescribed amount.

The total interest expenditure was RMB1,279 billion Yuan in 2018.





V. Green Benxi Steel

5.1 Green Products

Benxi Steel makes sustained efforts to promoting the strategy of “Green, High-quality and Smart Manufacturing” and “Building a urban steel factory featured by city and industry integration and ecological harmony”, focuses on cost reform, technical innovation, service first and smart manufacture, and constructs the enterprise developing strategy with the concept of steel builds beautiful life.

◎ Green Steel Products

“Benxi Steel” products have entered more than 100 key enterprises in 13 domestic major industries, including petrochemical industry, transportation, and national defense scientific researches, automobile and household appliance. Automobile wheel used “Benxi Steel” hot-rolled steel plate and steel strip has been rated as “excellent quality prize” by China Iron and Steel Association, “Benxi Steel” cold-rolled P-added high-strength steel strip, 400CrH series automotive steel, engineering machinery used 15B35Cr-M1 steel and cold-rolled non-oriented electrical steel are awarded as “Gold Cup Quality Product” by China Iron and Steel Association, and “Benxi Steel” carbon alloy structure steel and automobile gear used steel are named as “Liaoning Famous-Brand Product”.

Bengang Steel Plate is committed to green development and low-carbon solutions for iron and steel industry chain; has realized the research and development for products of cold-rolled and galvanized extra-deep drawing steel, high-strength steel and automotive electric appliance plates; and is capable for volume production of 1000MPa cold-rolled products and 600Mpa hot galvanized products. It now owns 8 major series of cold-rolled and galvanized products and over 100 brands which are well accepted by automotive industry and household appliance industry and accesses to overseas markets.

Automobile structure used hot-rolled steel, pipeline steel, construction steel, container steel and railway steel are in domestic advanced level compared with other brand products, among which some varieties of X70, X80 high-grade pipeline steel and RS590 high-strength lightweight wheel steel are in the domestic leading level.

The total output of new hot-rolled products in 2018 was 56580 tons, among which 4097 tons of 21.4mm X80 pipeline steel were used for China-Russia Eastern Gas Pipeline, 11658 tons of X70M pipeline steel were exported to India, 522 tons of N80 oil casing used steel, 9183 tons of RS590 lightweight wheel used steel, 521 tons of 58CrV4 tool steel, 30599 tons of other new products. The amount of newly developed RS590 unique products was 9183 tons, accounting for 16.2%.

Benxi Steel owns automotive steel possesses deep drawing mild steel products, P-added high strength steel, baked and hardened steel, deep drawing high-strength steel, low-alloy high-strength steel, dual-phase steel, transformation induced plasticity steel and hot-press molded steel, and provides automotive plates of complete varieties and specifications. The products are in domestic leading level, and our quality control also ranks top in the industry, and our hot-press molded steel achieves national advanced level, and part of our products are world debut. The 2000MPa hot-press molded steel processed by hardening treatment (co-developed by Benxi Steel and Northeastern University) has a strength exceeding 2000MPa, and a ductility bigger than 6%, the elongation of which does not decrease as the strength increased comparing with 1500MPa hot-press molded steel, and it also solves the problem of high strength steel delay fracture by special process design, the product performance index is superior to similar products in the world wide.



In 2018, Benxi Steel developed 10 new automotive plates products, including HC550/980DP, QP980, 380/590TR, St52, HC260P and HC460LA cold-rolled steel plate; HC250/450DPD+Z, HC300/500DPD+Z, HCT780T+Z and DP980+Z galvanized steel plate, with a total amount of 3020tons.

In 2018, the output of silicon steel products was 138,515 tons, including 12 tons of 35W440, 388 tons of 50BW470, 24066 tons of 50BW600, 96721 tons of 50BW900, and 17328 tons of 50BW1300.

In 2018, the output of electric galvanized products was 10058 tons, mainly were household appliance used EGN5 products (accounting for more than 80% of the total contract amount), a small amount of SECC products, and the rest were DC06E+Z phosphating products for automobile boards use, DC04E+Z and DC06E+Z single-side galvanized plates for automobile Fuel tank use.

In 2018, the total output of pickling products was 404,905 tons, of which the total output of new products was 112,153 tons. The new products include 16,401 tons of steel for automotive deep drawing, 27,732 tons of steel for automobile structure, 17,484 tons of automotive high yield strength ratio steel, 5,160 tons of steel for automotive high strength structure, 5,157 tons of steel for wheel and cross beam, 27,559 tons of steel for welding steel bottle and welding pipe, and 12,657 tons of other new products.

◎ External Approval of Green Products

The steel plate strictly complies with the highest international quality and safety standards, and has passed ISO9001 (Quality Management System), ISO14001 (environmental management system), OHSMS18001 (Occupational Health and Safety Management System) and ISO/TS 16949 (Automobile Steel Plate Quality Management System) certification. Benxi Steel is China's first quality management innovation base in metallurgical industry. The products have been accepted by General Motors, Toyota and other international famous enterprises, China National Petroleum Corporation and Sinopec, and certified by classification societies in Britain, the United States, Norway and other nine countries. In 2018, a total of 56 brands of cold rolling and galvanized products have been certified, covering the world famous brands such as Mercedes-benz, BMW, General Motor, Nissan, Ford, Fiat and Renault, which indicates that Benxi Steel is qualified and capable of material supply for world-class automobile enterprises.

(1) Automobile sheets have 1 brand certified by General Motors (cold-rolled CR590T/340Y-DP) and 9 brands certified by Mercedes-benz (cold-rolled DC04, HC260LA, HC380LA, galvanized DX52D+Z, DX54D+Z, DX57D+Z, HX260LAD+Z, HX340LAD+Z, HX380LAD+Z); 16 brands certified by GM-Wulin (cold-rolled DC01, DC03, DC04, DC05, DC06, HC260LA, HC300LA, HC340LA, HC380LA, HC420LA, 170P1, 210P1, 280VK, 250/450DP, 340/590DP, 420/780DP); 8 brands certified by FAW-Volkswagen DY models (cold rolling DC04, DC05, DC06, CR4, CR5, HC180B, HC220B, t11550-220); 1 brand certified by Brilliance Auto (pickling PHS150); 1 brand certified by Chongqing Zhixin (cold rolling PHS1500); Wuxi Langxian provides 1 brand to Kailong New Energy (cold-rolled PHS1800) and Liaoning Tianwu Plate provides 1 brand to FAW (cold-rolled PHS1800).



(2) Household appliances used silicon steel products have been certified by Dalian Wiest Roller Motor and Jiamusi High Voltage Motor; Electric galvanized products certified by Changchun Huaxiang DC04E+Z, Chengdu Lingchuan fuel tank used passive products DC05E+Z, Changchun Engley Auto used phosphating DC06E+Z, some products have been used for bulk supply; certification for hot rolled pickling board product is mainly by automobile factories, and has successfully passed the product quality certification of by SHAC, Saic Motor, Qingdao Volkswagen, Jiangling Automobile and Valeo and other domestic famous automobile factories and processing equipment factories. The certification products mainly involve hr440t-sa, QStE420TM, HR500LA, BG420L, S315MC, QStE340TM, HR2, SPHC, SAPH440 and so on. Up to now, we have started the batch supply work, and the overall usage is good.

◎ Typical Green Products

(1) High-strength Steel: weight reduction and energy saving

As Q960E is put on the market, the hot-rolled high-strength steel of Benxi Steel has become to be a completed product series the yield strength of which reaches 960MPa and is well used by engineering machinery and vehicles all over at home and abroad, and the product quality is stable and reliable, reaches domestic advanced level, among which RS590 lightweight high-strength wheel steel is in leading domestic level.

High-strength steel is featured with high strength and long service life, being a sustainable green product. High strength steel used in construction machinery and automobile manufacturing can save materials, increase effective load and reduce fuel consumption, and is the preferred material for "weight reduction and energy saving".

For example, dumper carriage material is changed to be Q550D high-strength steel from Q345B low-alloy steel, its thickness is reduced to be 6mm (for bottom) and 4mm (for side) from the original 100 (for bottom) and 8mm (for side), the carriage weight is decreased to be 5.2 tons from original 6.5tons, reduced 1.3tons, namely 20%, saving a cost of 2600RMB. As per reports, for every 10% reduction in vehicle quality, fuel consumption will drop by 6-8% and emissions by 4%, thus, weight reducing can drop 12% to 16% fuel consumption, save 4 to 6L/kilometers fuel, and reduce emission by 8%.

(2) Container used Steel-Low Carbon and Weather Resistant

Bengang Steel Plate, as a first echelon container coil supplier in China, once supplied SPA - H with an annual amount of 700000 tons with stable the product performance and quality. The products are widely used by CIMC, CXIC, QPCL Container and other large container manufacturing enterprises, and are well accepted by users, and the product quality is equal to that of Shougang Group, Taiyuan Iron and Steel and Baosteel.

The container used steel has good corrosion resistance that prolongs the service life of container and reduces the consumption of resources and energy.

(3) Pipeline Steel

The research and development of pipeline steel products of Benxi Steel has always been in the first echelon of domestic steel factories. The products are supplied to CNPC, CNOOC, Sinopec and other enterprises, and exported to India, the Middle East, South Korea and other regions. The annual supply reaches 400,000 tons, among which X70 and X80 reach 240,000 tons.

(4) Railway Used Steel



Q450NQR1, 09CuPTiRe and other steel types used for railway vehicles passed product certification by Ministry of Railways in 2006, and realized bulk supply. Benxi Steel once was a first echelon domestic railway vehicle used coil supplier, and now is processing on re-certification by CRRC.

(5) Advanced High-strength Steel Product: weight reduction and energy saving

Advanced high-strength steel is a green product with sustainable development and featured by high strength and long life. The advanced high strength steel products such as DP780, TR780, DP980 and QP980 are used in the automobile manufacturing industry, and are the preferred material for weight reduction and energy saving. The impact safeness of automobile can also be improved by increasing the strength of steel plate but reducing its thickness.

By improving the steel plate strength and reducing the thickness of the steel plate, it can also improve the safety of car collision

(6) Green Electro-Galvanized Product

EGN5 electro-galvanized fingerprint resistant plate is mainly used for LCD TV and display backboard. DC06E+Z phosphating galvanized plate is mainly used for high-grade vehicle interior parts that need complex deformation.

(7) Hot-rolled and Pickled Plate

Reducing consumption, cost and environmental pollution is mainly reflected in the following three aspects:

First, the successful development of high-strength hot-rolled pickled plate, especially the successful development and application of products above 590MPa. High strength steel plate is featured by high strength and long life, belongs to the sustainable green products. The usage of high-strength steel by automobile industry not only can save the material, but also can enhance passive safety performance under vehicle impact, being the first choice for "weight reducing and energy saving";

Second, the successful research and development of thin hot-rolled and pickled plate, especially products thinner than 3.0 mm which successful replaced the cold-rolled plate for the volume production of interior car structural parts; compared with cold-rolled plate, the pickled plate can guarantee the surface quality and reduce the purchasing cost. According to relevant statistics, using hot-rolled pickling plate to replace the cold-rolled plate of same strength level can save 10% raw material cost;

Third, comparing with the ordinary hot-rolled plate, its surface quality is good, hot-rolled pickling plate removes iron oxide on the surface which improves the surface quality of steel and makes it easy for welding, oil liquoring and painting. The hot-rolled pickling plate has successfully replaced the original production mode of press forming and then pickling, which has greatly reduced the environmental pollution caused by dispersed pickling.

© Green Customer Solutions

(1) Solutions Based on Customer Requirements

The company gives full play to the technical advantages of green steel products in research and development, molding, analysis and user technology research, and takes technical services, product development, early vender involvement, (EVI), integrated solution (package arrangement), win-win solutions to meet the special needs of users." Early Vender Involvement" refers to the involvement of the material manufacturer in the early stage of product development by downstream users to fully understand the requirements of users on the performance of raw materials, so as to provide customers with materials with higher performance and personalized services.



Cases

"Industry-university-research and application" Joint Laboratory

Bengang Steel Plates, Northeast University and Brilliance Auto set up a joint laboratory of automotive steel, which has made gratifying achievements. The joint laboratory has completed a number of new product research and development and technical breakthroughs, and has made new breakthroughs in vehicle model project, including forefront product development, such as 1800MPa class, 1500MPa hot pressed section steel, DP980 cold rolled dual phase steel, 800MPa hot rolled pickling plate, as well as cooperation achievements, such as light-weight EVI of body in white, weight reduction of auto parts, reverse engineering analysis and so on.



Cases

The World First 2000MPa Ultra High-strength Steel

Hot stamping of 2000MPa ultra high-strength and toughness section steel rolled off the production line smoothly. This is the first time that super high strength steel products of this tensile strength class have been put into mass production and application worldwide. As the world's highest grade of hot stamping formed steel, 2000 MPa hot stamping formed steel can greatly improve the safety of cars, at the same time achieve the parts weight reduction of 10% to 15%, greatly reduce the production cost of automobile enterprises, social benefits and economic benefits are very considerable.



Cases

QP Steel Series Product Development

The development of QP steel series products promotes the environmental protection of the car body used steel, lays a good foundation for future energy conservation and emission reduction and improving the corrosion resistance of security structural parts. It promotes the volume supply to Japanese, EU and American brands, and gives a strong support for the lightweight development of automobile industry.



Cases

Development of RS590 High-Strength Wheel Steel

Shandong Longkou Xingmin Steel Rim Co., Ltd., a famous wheel manufacturer in China, was in urgent need of a wheel rim material so as to it could realize the target of 10% weight reduction for 34kg 22.5*8.25 commercial vehicle wheel, and also required the wheel radial fatigue life platform test exceeds 1 million times. Benxi Steel successfully developed RS590 high strength wheel steel and met the customer's target of weight deduction. RS590 effectively overcomes the forming and welding difficulties existing in the wheel manufacturing process of high strength steel. Meanwhile, the wheel radial fatigue life platform test reaches 1.4 million times, which is well received by users and the sales volume reaches 31,000 tons.



(2) Follow up the green service concept of sustainable development

"Clear water and green mountains are mountains of gold and silver". Bengang Steel Plate continuously follows up the update and change of domestic and foreign environmental protection laws and regulations and the development of users' green demands, and make internal assessment to ensure that all seven categories of products including hot rolling, pickling, cold rolling, hot galvanizing, electric galvanizing, electrical steel and special steel meet the requirements of RoHS directive, REACH and other laws and regulations. It consciously accepts the supervision of the society, and regularly entrusts the third-party inspection institutions to test all the products, and published a total of 27 third-party inspection reports of all the carbon steel products.

◎ Provide Excellent Service

Bengang Steel Plate adheres to customer-oriented concept , constantly improves and enhances the effectiveness of customer and product services and operational efficiency. The company strengthens customer complaint management system, considers customer complaints from the standpoint of customers, actively takes effective measures to improve customer satisfaction, so as to meet customer needs. Customer satisfaction in 2018 was 97.10.

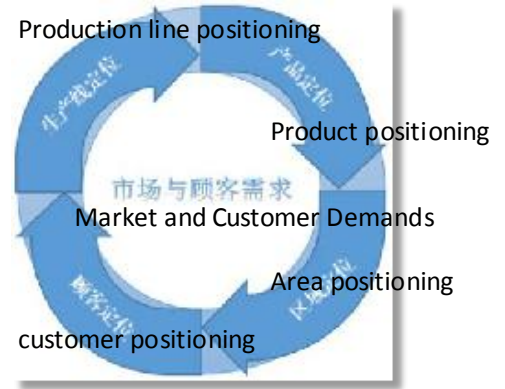
Bengang Steel Plate set up ten domestic branch in northeast China, north China, east China, south China, central south and other places; five overseas branches in Hong Kong, South Korea, Vietnam, Europe, the United States and other countries and regions; four processing and distribution centers in Benxi, Tianjin, Shanghai, Shenyang and other places; and technical service group and the after-sales service group providing full-time services. The company perfects marketing service network to meet the needs of domestic and foreign market.



Bengang Steel Plate always put customer needs as first, and selects the target market, making market strategy based on production line positioning, product positioning, area positioning, customer positioning, market research, the market segmentation as per customer requirements, the company strategy development and its own advantages.



From the application point of view, hot-rolled products are mainly used in construction, automobile manufacturing, oil pipeline, the container industry, cold-rolled plates are mainly used in automotive, household appliance manufacturing, electronic, chemical industries; plating plates are mainly used in automobile manufacturing, household appliances manufacturing, construction, decoration and packaging industries; non-oriented silicon steel are mainly used in compressor motors, general motors, small precision motors and EI transformer industry; and the special steel are mainly used in petrochemical industry, energy and transportation, machinery manufacturing, aerospace and other industries.



Bengang Steel Plate aims to do well in five domestic markets: northeast, north China, east China, south China, southwest. Northeast China, north China and east China are the key markets to be developed and consolidated, as well as the main markets for products and services. East China is the key automotive board product market; South China is the target market for high value-added products such as household appliances. For the international markets, there are "three moves": perform intensive operation in traditional markets, find proper location in EU market, and then plan well the "One Belt and One Road". Asia is the key target market, especially the South Korea that is the key market of hot-rolled products, and it's the key export market that needs consolidation and continuous development; pay close attention to and develop Southeast Asia, Japanese, Taiwan Market and other One Belt and One Road related countries. EU market is the key market for construction machinery and building used steel plates, and needs to be developed vigorously based on current condition. North America and Australia are key markets of cold-rolled and plating products, and there are vast market potentials for Benxi Steel's products and re-products.

- Bengang Steel Plate continuous improves the 3 level service system to build a site reprehensive service system that closely surrounds the regional market and supported by sales department and regional companies; an after-sales service system represented by customer service department, and a manufacture-sales-research system taking research department, manufacture department and each manufacturing plant as the core. The company carefully identifies customer special characteristics, and develops measures for quality-oriented and product developmental projects to provide effectively and comprehensive services as per customer needs.

- Bengang Steel Plate steadily boosts the non-car EVI project, on the basis of "differentiated" marketing strategy, implements the strategic requirements of transformation from manufacturing-led to service-led, through customer visit, investigation and forum, discussion and project implementation, actively explores and expands in household appliances, petrochemical industry and metal processing to implement EVI service in non-poses area and enrich marketing services.

- Bengang Steel Plate strengthens the information service of objection management, establishes CS customer service management system, standardizes objection processing, improves the efficiency of objection handling, and realizes rapid response. The realization of information sharing in mobile terminals enables customers know in time and supervise the steel objection processing process.

- Bengang Steel Plate improves the customer visit administration system, and divides the customer group into strategic users, key users and ordinary users such three levels, based on service levels customer required, customer contribution to company's economic benefits, loyalty, consumption and other aspects, to recognition and optimization, form a visit plan to key users and above and company senior leaders' schedule, implement the multidimensional and hierarchical



users visit exchanges and promote effective visit and exchange as per department plan. Visits and exchanges at all levels not only deepens strategic partnership with important users, but also promotes the exchange and cooperation between Benxi Steel and the users, promoting the complementary advantages of both sides.

5.2 Green Manufacturing

The company, based on the three functions of the whole process integrated joint steel plant - "advanced iron and steel products manufacturing, efficient energy processing and conversion, comprehensive utilization of bulk waste ", adheres to the resource utilization efficiency priority rule and "3R " (reduction, reuse, recycle) principle, seeks low carbon technology for continuous improvement, constantly reduces the resource and energy consumption in production; based on the whole life cycle environmental management concept, adopt advanced production technology and pollution control measures to prevent at the sources, control the process and conduct end treatment, and strengthen the process management to complete the production process of steel products with the minimum consumption and minimum emissions.

◎ Comprehensive Utilization of Resources and Energy

(1) Bengang Steel Plates Co., LTD's major resource and energy consumption in 2018 are as follows:

Main Energy Consumption in 2018

Resource Type	Unit	Consumption
Finished iron ore	10 thousand t	1387
Steel Scrap	10 thousand t	111
Coke	10 thousand t	416.9
PCI Coal	10 thousand t	112.9
Steam Coal	10 thousand t	41.7
Cleaned Coal	10 thousand t	639.1
Electricity	a hundred million KWh	52
Fresh Water	10 thousand t	3679.2

Main Energy Index of 2014-2018

Index Name	Unit	2014	2015	2016	2017	2018
Comprehensive energy consumption per ton steel	%	100	98	100	102	99
Total amount on surplus energy recycling	%	100	99	103	99	99
Fresh water consumption of per ton steel	%	100	97	83	96	102

Note: Use 2014 as the baseline, the data in above form is scale value.

(2) Utilization of Solid Waste and By-product Resources

In recent years, the comprehensive utilization rate of steel slag of Bengang Metallurgical Slag



Company has basically maintained at 100%. The existing steel slag treatment projects include steel slag hot splash project, hot steaming steel slag recycling project and supporting slag processing line, 7 steel slag processing lines and high-span drop hammer room.

The steel slag of converter is treated with hot steaming process, then crushed and screened by magnetic separation line, 35% of the converter waste slag concentrate powder, magnetic steel slag particle, slag iron, granular iron and steel slag powder. Refining slag, desulfurated slag and landing slag are treated by hot splash, after which 35% of converter waste slag concentrate, magnetic steel slag particles, slag iron, granular iron and tailings are separated by magnetic separation line sieve. The large slag iron will be shipped to the processing workshop to be crushed by drop hammer, cut and broken, and then shipped back to the steel mill. If the grade of slag iron is above 70%, it will be returned to the steel smelting plant to replace scrap steel. The recycled steel slag magnetic separation powder (with iron grade of about 35%) is returned to sinter burdening. Recycled refractory materials in the landing waste of converter shall be handled by Benxi Steel International Trade Company for export. Mixed tailings also shall be handled by Benxi Steel International Trade Company for export.

© Energy Saving Management and Carbon Emission Reduction

The company closely tracks the cutting-edge technology of low-carbon technology in the steel industry, and adheres to the concept of whole process technology energy conservation, energy structure optimization and gas and chemical products continuous improvement. It has adopted a large number of advanced technologies such as low-grade residual energy recycling and energy saving in industrial furnaces, and steadily developed the application of new energy and low-carbon fuels.

(1) Energy Saving on Management

In 2018, through daily energy report, the company conducted analysis on energy consumption data, timely found and solved energy problems and improved the timeliness of energy process management. The company vigorously carried out all-round economic operation and peak avoiding production, effectively reducing power consumption; strengthened energy measurement and invests in improving the measuring instruments at all levels to provide sufficient basis for energy consumption analysis; and completed three supplies (water supply, power supply and heat supply) and old facility removal and transfer work, all which reduced the burden. The quota of power was 278 million RMB from the budgeted figure; in June, the comprehensive energy consumption per ton steel reached 591kg, being the best level in history.

(2) Energy Saving on Technology

The company has fully applied key energy-saving technology and equipment and residual energy recovery measures in the industry, and invested in the application of some advanced new technical means to continuously reduce energy consumption in the steel production process. At present, the company is building an 180MW CCGT generator with low calorific value gas. After the equipment is put into production in 2020, the company's self-generating rate will be significantly improved. In 2019, the company will complete more than 60 investment projects on energy conservation measures, including promoting the application of new technologies such as green lighting, frequency conversion and energy conservation technology, permanent magnet speed regulation and energy conservation technology, and high-efficiency and energy-saving water pump technology, and eliminating a number of energy-consuming motors and transformers.

Process	Key equipment energy-saving technology application and residual energy recycling measures (waste heat)
Iron Smelting	√ Sintering ring-cold waste heat recycle and supporting power generation
	√ Waste heat recycle for blast furnace slag water
	√ Wet blast furnace dust removal and TRT power generation



	√ Recycle of waste heat for hot air furnace flue gas
	√ Recycle for waste heat from sintering flue gas
Steel-making	√ Waste heat boiler for converter
	√ Waste heat boiler for electric furnace
	√ Vaporization cooling system for steel-making
	RH Storage Capacity Expansion and Optimization
Steel-rolling	√ High efficient furnace combustion technology
	√ Gas and air preheating technology
	√ Replacement for process energy saving use
	√ Recycle of waste heat from low temperature flue gas
	√ Steam-cooling of heating furnace
Coking	√ Coke oven high temperature and high pressure dry quenching and power generation
	√ Recycle of waste heat in high temperature section of primary cooler
Energy and Public Auxiliary Works	√ Recycle of boiler smoke sensible heat
	√ Low vacuum heating for generator set

(3) Energy Saving for Process

By simplifying the process flow and adjusting the imbalance of production and supply, the company adjusts the process of dematerialized water, living water and nitrogen system to reduce water displacement and living water consumption, so as to make up for the imbalance of the company's oxygen and nitrogen system and reduce the electricity consumption.



Cases

Research on energy saving technology for oxygen and nitrogen production capacity adjustment

Through increasing production of oxygen, nitrogen and argon in the two factories, 68,100 tons of liquid oxygen and liquid nitrogen liquid argon were sold, creating an effect of 75.439 million RMB. The No. 6 oxygen generator of Bengang Steel Plate Company was overhauled, which solved the problem of insufficient argon gas production; No. 6 and No. 7 oxygen generator was reformed to increase nitrogen production by 30,000 m³ per hour, which eased the shortage of nitrogen and avoided the frequent operation of No. 4 and No. 5 oxygen generator, and it saved 100,000 kWh per day during the joint inspection

(4) Carbon Emission Reduction

By carrying out carbon inventory, Bengang Steel Plate starts from the steel production process, actively explores the technological energy conservation of the whole process, contributes to the ecological civilization and the realization of low-carbon development, analyzes and studies the carbon footprint of the production process, further clarifies the characteristics and key points of the company's carbon emission, and makes corresponding carbon emission reduction countermeasures. As per Ministry of Ecological Environment on "Notice on Annual Carbon



Emission Report and Verification and Emission Monitoring Plans in 2018” (HBQHH [2019] No. 71) and the unified arrangement of Liaoning Province, carbon emission examination to Bengang Steel Plate Company and relevant examination report was conducted, and the company will give management on carbon assets according to the actual carbon emissions after national carbon emissions quotas is issued.

The company has developed a low-carbon development path based on saving energy and upgrading utilization efficiency, and continuously strengthened the application of advanced energy-saving and low-carbon technologies, and implements the promotion and application of a number of key general energy-saving and emission reduction technologies in the steel industry. With the expansion and deepening of the functions of energy management center, the company has greatly improved the data collection and transmission of energy utilization. The company will further take measures in the reform of energy-saving and low-carbon technologies, including the application of advanced technology for energy conservation, efficient utilization of low-temperature waste heat, new energy and renewable energy utilization, etc.

© Industrial Environmental Management

Through the implementation of engineering transformation, management and technology upgrading, the company constantly strengthens the environmental protection process management, ensuring that the pollutant discharge is fully qualified and controlled and the main environmental protection indicators can be continued to be improved.

Pollutant Emission of Per Ton Steel in 2018

Item	SO2	NOx	COD	Ammonia Nitrogen
Emission per ton steel(kg/ton steel)	0.434	0.913	0.038	0.011

Key Control Measures

(1) Respond to national and local cleaner production requirements

Steel Plate Company actively responds to the requirements of the national and local cleaner production, till the year end of 2018, 11 units of the company (iron and steel mill, steel mill, co king plant, power plant, special steel plant, hot strip plant, cold rolling plant, cold rolling plant II, cold rolling plant III, water supply plant, gas plant (main power factory))finished clean production audit, and met the requirements of cleaner production of various technical indicators.

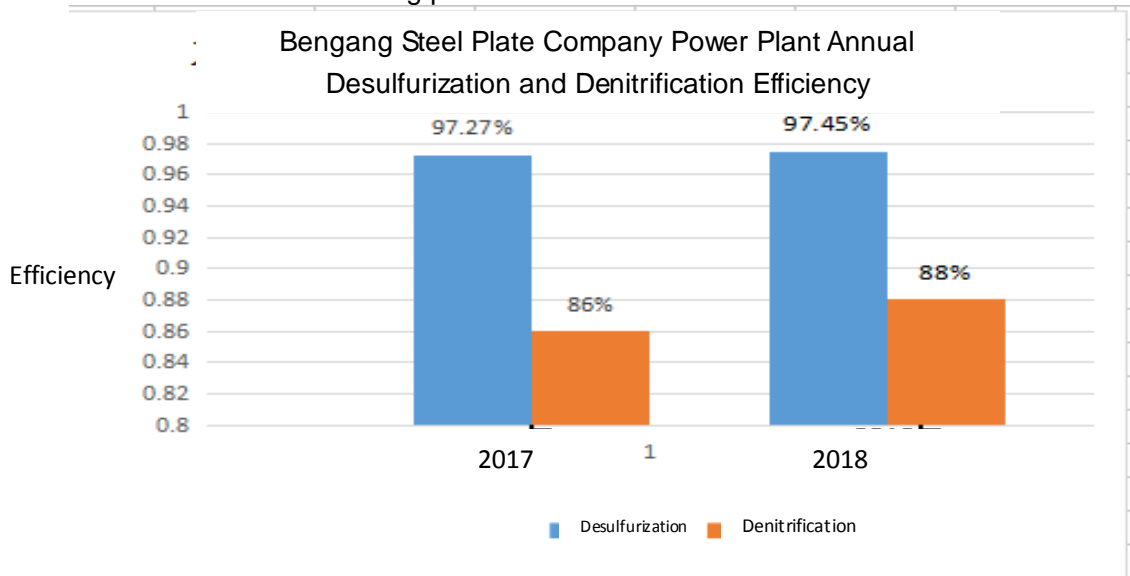
(2) Continuous Upgrading and Reconstruction

The company has been working on upgrading and reconstruction of environmental protection projects and working process as per laws, regulations and emission standards for years: the blast furnace casting house, coke tank, roof, coal powder preparation system with film-coated cloth bag, fold cloth bag dust collector reaches ultra-low emission; sintering dust, entire grain, supporting electric precipitator, electric dust remover or cloth bag at the tail, electric precipitator at the head + wet lime and gypsum desulfurization; power generation boiler flue gas desulfurization and denitrification, coking, coaling, coke pushing, converter final bag-type dust remover. At present, the reconstruction of the combined heat and power production of No. 3 Power Plant, the complete matching of dust removal, desulfurization and denitrification facilities for the coal fired boiler in the high-pressure workshop, Maerling pelleting desulfurization, desulfurization of No. 4 Electric Field of the 566m² sintering machine in the iron refinery and the transformation of the concentrated brine treatment in the power plant have also gradually improved the reuse rate of sewage in the plant and reduced the total amount of wastewater discharged.

Through the above environmental protection renovation, the emission of key pollutants such as SO2, NOX, COD and ammonia nitrogen of enterprises has been greatly reduced, and now it can reach the domestic advanced level or even the international leading level. In 2018, sintering desulfurization efficiency was 91.21%, power generation desulfurization efficiency was 97.45%



and denitration efficiency was 88%.Online monitoring shows that pollutant discharge fully meets the requirements of national standards. In terms of optimization of unorganized particulate matter emission index, Bengang Steel Plate Company has covered the Tuanshan material yard of the raw material system with wind protection and dust suppression net, set up spraying and dust suppression facilities, upgraded the converter's secondary dust removal, and fully captured the smoke and dust from the smelting process.



(3) Improve process control to ensure stable and efficient operation of environmental protection facilities

There are more than 170 sets of waste gas treatment and environmental protection facilities in the steel plate plant, 70 sets of online monitoring facilities, and 13 monitoring cameras. Environmental protection facilities operate synchronously with main facilities and provide stable online data transmission. All pollutants discharge meets the requirement of relevant standard. According to the management system formulated by the company, each factory carries out routine inspection, maintenance and inspection, and spot check of environmental protection facilities and effectively controls pollutant discharge through camera monitoring.

(4) Investment on Environmental Protection Facilities

Bengang Steel Plate has accelerated the construction of environmental protection treatment and environmental protection equipment upgrading, invested 4.469 billion RMB in total (885 million RMB in 2016, 1.275 billion RMB in 2017 and 2.309 billion RMB in 2018) to implement energy conservation and emission reduction projects. It has finished sintering machine desulphurization in steel plants, desulfurization and denitrification for combined heat and power generation in No. 3 workshop of power plant, No. 7blast furnace overhaul in iron mill, upgrading for dry dedusting, and energy saving reconstruction for TRT system, the casting house and raw material dust remover on the top of furnace of No. 1 new blast furnace, the casting house and raw material dust remover on the top of furnace of No. 6 blast furnace and steel finishing and dust remover. In 2019, 100 million RMB will be invested to carry out the renovation of the environment protection measure, covering flue gas desulfurization and denitrification for 2 set of coke oven, VOCS exhaust gas purification, primary dedusting of converter in steel mill, anti-dust net construction and spray facility reforming of raw material plant.



(5) Strengthen system building and continue to improve environmental risk management level

The management of all steel factories and mines comply with the environmental management system. On June 9, 2017, the company completed the certification replacement work of GB/T 24001-2004/ISO 14001:2004. 2018 is the first year after obtaining the certification of the new environmental management system, the company completed the version change audit by 14001:2015 environmental management system, implemented the concept of life cycle and risks and opportunities in the new certification, learned to master environmental policies and regulations, fully understood the requirements of relevant parties, and revised and improved the "Environmental Factor Identification Control Procedure" and other procedural documents. Faced with the increasingly severe external pressure of environmental protection, the company has compiled and issued "Provisions on Responsibilities for Environmental Protection Work for Benxi Steel Group", confirming the principle of "the party and government share the same responsibility, two duties for one post, performing obligations while enjoying rights, conducting joint management and green development", strengthening the awareness of environmental management, and improving the level of environmental risk management.

(6) Enhance Environmental Monitoring

In 2018, the company carried out monitoring of 150 pollution sources of flue gas, 10 waste water monitoring points, 5 noise points at the factory boundary, 27 atmospheric dust fall points and 60 unorganized monitoring points. The monitoring was divided into weekly, monthly, quarterly, half-yearly and annual frequency according to the monitoring plans and all the monitoring was completed according to the plan. Monitoring on benzo pyrene, mercury, dioxin were entrusted to qualified independent unit since the plate plant is not capable of such monitoring.

5.3 Green Urban Steel Plant

The company attaches great importance to energy conservation, environmental protection, circular economy and the sustainable development of a green city steel factory. We will strengthen the circular economy, adhere to the principle of "reduction, reuse and recycling" of the circular economy, and manage to implement circular economy, such as clean production, green procurement and recycling of waste in the whole life cycle of steel production and products and services. Taking measures such as source reduction, process optimization and process control, the consumption of raw materials is greatly reduced and the output rate of resources is increased, so as to realize resource conservation and environmental friendliness of enterprises. We will strengthen the fine management of suppliers and the procurement process, and resolutely carry out green procurement and promote the construction of green procurement supply chain. We will use independent innovation and technology integration to promote energy conservation, emission reduction and comprehensive utilization of resources, to raise the level of enterprise clean production and circular economy. Focus on energy conversion and recycling of resources of steel plants, actively share technology and resources with the city, assist urban industrial development and positively undertake social responsibility, aiming to build an "urban steel plant" with city and industry integrative development and ecological harmony.

◎ Local Ecological Environment Construction

On the basis of promoting ecological environment construction in Benxi city, the company strengthens the independent greening construction of the factory.

For main mine and minery, we need to promote mine ecological restoration, including mine slope stability and the green recovery, soil improvement in waste land, plant and microbial remediation of soil with heavy metal pollution, artificial restoration for surface water resources. So far the green area reaches 11.636million square meters, with a green rate of 99.59%.



Fully strengthen the plant greening and beautification construction, conduct bare ground treatment and vertical planting. The greening is reaches 2.455million square meters, with a greening rate of 98.91%.

◎ Strengthen Disclosure of Enterprise Environmental Information

As per national, provincial and municipal major pollution source information disclosure policy requirements, Bengang Steel Plate organized to conduct information statistics and then published on Benxi Steel website. In 2018, 10 companies participated in information disclosure work, mainly including iron mill, steel mill, coking plant, power plant, cold rolling plant, hot rolling plant, raw material factory, energy general plant and other units.

◎ Resource Sharing and Recycling

In 2014, Benxi municipal government, Liaoning provincial environmental protection department, Benxi Steel and Danfoss signed the "four-party framework agreement", agreeing to carry out comprehensive cooperation in urban green heating by utilizing Benxi Steel's waste heat resources, to rationally adjust the distribution of heating network, and realize win-win cooperation and harmonious development among cities, enterprises and the environment. By the end of 2018, Benxi Steel had raised a total of 145.42 million RMB to carry out waste heat heating renovation. In benxi urban area, the actual total heating area was 5.54 million square meters, among which the waste heat heating increased from 2.3 million square meters to 3.57 million square meters, and the boiler heating decreased from 2.52 million square meters to 1.97 million square meters. It can reduce operating cost by nearly 10 million yuan per year; reduce coal consumption by 20,000 tons, CO2 emission by 50,000 tons, dust emission by 208 tons, SO2 emission by 26 tons and NOX emission by 139 tons.

◎ Assisting City Industry Development

The company actively integrates into the urban industrial development and supports the development of strategic emerging industries in the city based on the characteristics of the enterprise. In 2018, it achieved remarkable results in supporting local economic development.

(1) Support local economic development in purchasing area. For purchase of iron ore powder, limestone, scrap steel, alloy, spare parts and other products procurement field, the company opens gives priority to local enterprise when the quality are at the same level. For the Benxi Steel's bidding, municipal enterprises are open for registration to participate in the bidding. The company reduced the requirement for S and P level local mining powder, and achieved a long-term cooperative volume of 2.08 million tons in 2018.

(2) In the area of product trade, the company support local governments in attracting foreign investment. It offers preferential steel supply for local enterprises; gives extra 50 yuan/ton discount for local investment and investment enterprises on the basis of preferential ordering for the agreed users; Bengang International Trade actively participates in the investment introduction organized by Benxi city.

(3) Support the development of Qiaobei Iron and Steel Deep Processing Industrial Park. Benxi Steel accelerates the construction of Northern Hengda Logistics Park, which is planned to be completed in December 2019. At that time, a larger platform will be built to drive the development of Qiaobei Industrial Park. Benxi Steel actively supports Pingshan District to carry out deep processing of steel products to attract investment, introducing more enterprises to settle in the industrial park.

(4) Support the development of Xihu Steel Scrap Industrial Park. On April 26, 2018, Benxi



Steel signed the “Steel Scrap Industry Cooperation Agreement” with Xihu District Government, which resulted in the purchase of 800,000 tons of steel scrap in 2018 and a substantial increase in industrial park bidding in 2019.

© Financial and Tax Contribution

The company contributes to the society with its honest operation and excellent performance. In 2018, the company paid state taxes and fees of about 515,752,400RMB. The company won the reputation of “Benxi A Level Taxpayer “for years due to the excellent tax credit.

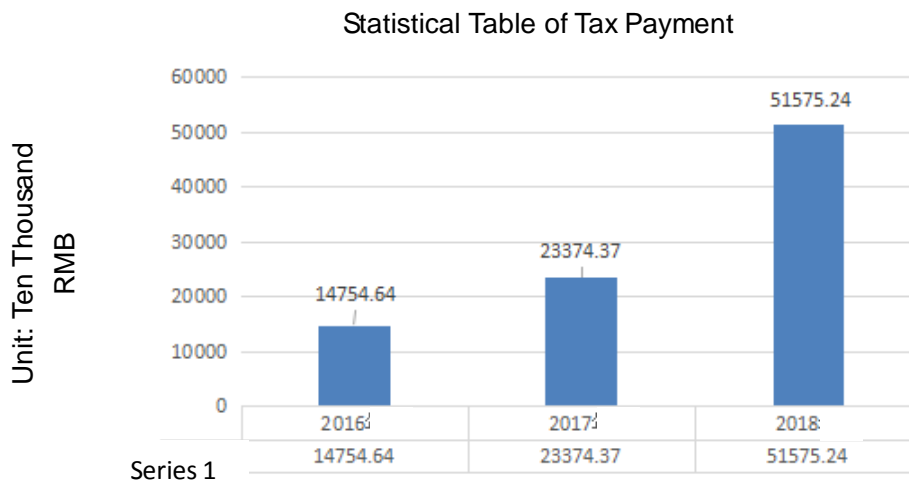
Tax Deduction and Exemption:

The company strictly complies with the laws and regulations of the state on taxation, and makes reasonable use of relevant preferential policies. In 2018, the company enjoyed the following tax reduction and exemption:

1) It enjoys the policy of additional deductions for technology research and development expenses. In 2018, the additional deductions for research and development expenses were 33.2 million yuan, and the additional deductions for income tax were 8.28 million yuan.

2) It enjoys the policy of investment exempts from income taxes for special equipment use (environment protection, energy and water saving and product safety). In 2018, the income tax exemption was 3.22 million RMB.

3) It enjoys government subsidies for special projects. In 2018, the government subsidies for special projects reached 2.7993 million RMB.



Note: The data of various taxes and duties submitted to the state include VAT and customs duties.

5.4 Green supply chain

Benxi Steel practices environment-oriented management and extends the concept of low-carbon, environmentally friendliness and sustainability to all aspects of the supply chain such as procurement of raw materials, auxiliary materials, equipment and spare parts. We formulate different procurement strategies, advocate the concept of resource conservation, environmental friendliness, and maximize the life cycle value of products; pass the green operation concept to upstream and downstream enterprises, guide suppliers to be civilized and healthy and to carry out clean production, and pursue coordinated development of economic, environmental and social benefits to jointly create a green supply chain full of sunshine and sharing responsibility.



◎ Green supplier management

Benxi Steel develops and implements supplier audit standards, focusing on suppliers' sustainable development, safe and environmentally friendly occupational health management, and green supply management. Through the establishment of supplier audit standards, enhance the breadth and depth of supplier audits, make sure the audit is scientific and effective, improve the management level of suppliers, and reduce procurement costs and risks. The main factors that Benxi Steel considers to choose suppliers are: the overall scale of the enterprise, production and operation situation, equipment capabilities, product quality control and environmental friendliness, etc. Active suppliers focus on long-term cooperation and improvement of green environmental protection capabilities. From 2013 to 2017, a survey was conducted on suppliers for all varieties in the network. A total of 2347 suppliers from 31 categories were surveyed, and the supplier's manufacturing capabilities and product quality control capabilities were reconfirmed. At the same time, in accordance with the promotion standards, we actively explored new suppliers and promoted the continuous optimization and improvement of the supplier structure. From 2018 to the present, 900 new suppliers were introduced, and the number of qualified suppliers in the network reached 2,760. Through the annual comprehensive assessment and evaluation, the dynamic flow of suppliers was promoted. In 2018, 2,212 suppliers participated in the annual assessment and evaluation, and after comprehensive evaluation, there were 46 suppliers classified as unqualified suppliers.

Based on the key materials for automobile panels approved by the company, 12 suppliers and 26 varieties were identified as key material suppliers, and a systematic process audit was conducted, as a result, the operational capacity of key items and key suppliers' management systems was effectively improved. The production type supplier of key material shall pass the quality management system certification ISO9000, and it is recommended to pass the environmental management system certification ISO14000 and the occupational health and safety management system certification OHSAS18000. The key material suppliers involved in the automotive industry's steels are recommended to pass the automotive industry quality management system certification IATF16949. The system is not required for circulating suppliers.

For suppliers of key materials, the "Code of Conduct for Social Responsibility of Suppliers in the Purchasing Center of Benxi Steel Plate Co., Ltd." is formulated to require suppliers to comply with all applicable laws and regulations of the countries and regions in which they operate, and to use this as a prerequisites for cooperation with Benxi Steel. Benxi Steel encourages suppliers to adopt internationally recognized industry standards and industry best practices to continuously improve CSR management. Benxi Steel incorporates CSR into the performance appraisal for suppliers, including material certification, supplier certification and full lifecycle management of selection, daily management, performance evaluation, and exit. For suppliers with good CSR performance, Benxi Steel gives priority to providing business cooperation opportunities; for suppliers with poor CSR performance, especially those who violate the CSR red line requirements, Benxi Steel requires them to rectify within a time limit and restricts their business cooperation opportunities until the partnership is canceled.

◎ Actively promote "sunshine procurement"

Benxi Steel actively promotes "Sunshine procurement", bidding and purchasing according to law, promoting open procurement, and working with suppliers to create a clean, fair, just and open supply chain environment. Benxi Steel's current procurement model is mainly the bidding procurement mode. The bidding mode is the basic way for modern enterprises to implement material sunshine procurement. It is an effective way to obtain the required resources in a larger



scope, the main means to achieve healthy competition and implement sunshine operation and an important measure and firewall to prevent unfair transactions and avoid black-box operations. There are two main types of bidding modes, one is open tendering and the other is invited tendering.

In order to ensure the openness and transparency of the procurement process, it is required to be open and transparent from the formation of the procurement plan, the organization of the market research, the design of the procurement process, the implementation of the procurement behavior, and the management of the procurement materials, that is, the procurement process must be practical, open and transparent. Openness and transparency mean that the plan be open, the process open, the results public, the process open, and the implementation transparent.

From the contract signing, transportation mode, inspection and entering storage, settlement and payment, delivery in place, on-site use, service management, supplier access, supplier exit, etc. of the purchased products, the processes and links are closely connected, the operation efficient, and highly detailed and unified responsibility, functions, powers and obligations of all aspects of the process must be realized.

In order to ensure the realization of "Sunshine procurement", Benxi Steel continuously promotes the information sharing of the entire supply chain, and realizes the rapid transfer, effective integration and system sharing of information from various departments such as management departments, supervision departments, executive departments, production users, field use and suppliers to ensure smooth flow of information throughout the procurement process.

5.5 Honest and ethical operation

In the business activities, the company consciously abides by professional ethics and integrity standards, adheres to the law, be honest and trustworthy, standardizes operations, establishes a credit system, and actively advocates the business philosophy of "honesty, mutual benefit and win-win", and regards the moral behavior of employees as an important part of corporate culture construction, building a management system for ethical behavior. The tax level is always maintained at level A, and the credit rating in multiple banks has always been 3A.

The company insists on deepening the construction of a clean and honest party, and adopts a clean and ethical business operation to ensure sustainable development, and actively shoulders the political responsibility of strictly administering the party, be strict about inner-party life, and observes strict party discipline, strengthens inner-party supervision, deepens the work of reforming the discipline inspection and supervision system, improves the working mechanism of the stationed institutions, and improves the effectiveness of comprehensively and strictly administering the party. It carries out clean and honest missions, disciplinary review and comprehensive supervision, creates a strong atmosphere of anti-corruption and observing strict discipline, and strives to build an institutional mechanism that dares not to corrupt, not able to corrupt, or want to corrupt, providing a firm political guarantee for the company to achieve long-term development goals.

Results of the company's moral behavior in the past three years

No.	Performance Index	2016		2017	2018
1	Customer contract fulfilling rate	100		100	100
2	Fulfilling rate of group labor contract	100		100	100
3	Purchasing plan fulfilling rate	91.35%		92.45%	94.09%
4	Tax credit rating	A		A	A
5	Bank credit rating	3A		3A	3A
6	Commodity import and export inspection level	-		-	AEO advanced certification

VI. People-oriented

Benxi Steel adheres to the "people-oriented" concept, establishes the talent concept of "respecting the sages and making the best of talents", always pays attention to the needs of all stakeholders, provides employees with competitive compensation and benefits, creates training and learning opportunities and career development space, and implements each heart-warming project and employee activities to create a "fair and harmonious" professional environment, so that employees and enterprises can grow together and develop together.

6.1 Employee profile

At the end of the reporting period, the company had 17,997 employees, and the ratio of male to female employees was 8:1, which is suitable for the development of the steel industry. The company has a young and dynamic workforce with a reasonable age structure. The employees are mainly aged 50 years and below, accounting for 68% of the total.

The company has a high-quality staff team; the proportion of college degree or above is 50%; the senior professional title accounts for 17% of technical personnel; the intermediate title accounts 59%; the senior staff or above accounts for 84% of the operators; the proportion of management is only 4%; the team is lean and efficient.

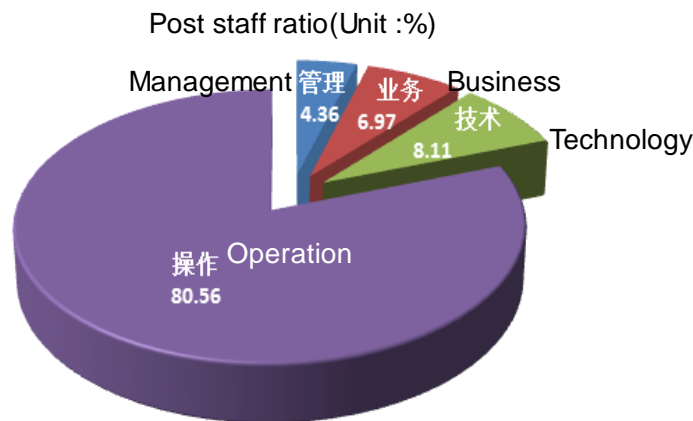


Figure 1 Post staff ratio

6.2 Learning and Training

The company relies on the Benxi Group training system to build an education and training system mechanism and to establish a sound education and training system. According to the long-term and short-term production and operation objectives and job requirements, the training requirements are summarized and selected in a bottom-up manner, and an annual training plan and a medium- and long-term training plan for the development strategy are formulated. The training funds are approved according to 1.5% of the annual wages of the employees in the post and paid to ensure that the training rate of all employees reaches 70%, and the annual training plan implementation rate exceeds 85%.

The company adopts diversified education and training modes and methods, and builds a comprehensive training base group with complete professional categories and infrastructure facilities (see Figure 2).

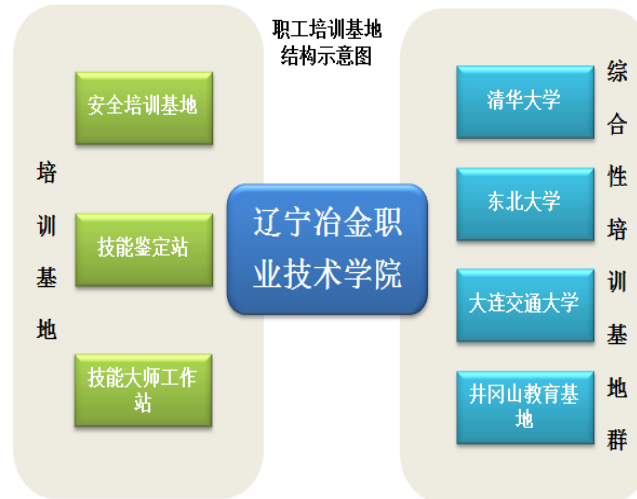


Figure 2 Schematic diagram of the staff training base structure

职工培训基地结构示意图 Schematic diagram of the staff training base structure

辽宁冶金职业技术学院: Liaoning Metallurgical Vocational Technical College

培训基地: Training base

安全培训基地: Safety training base

技能鉴定站: Skill testing station

技能大师工作站: Skill Master Workstation:

综合性培训基地群 Comprehensive training base group

清华大学 Tsinghua University

东北大学 Northeastern University

大连交通大学 Dalian Jiaotong University

井冈山教育基地 Jinggangshan Education Base

The company continues to innovate the human resources development platform, optimize the education and training model and carrier, and form an independent training system suitable for the company's development and advanced process technology requirements. Relying on Tsinghua University, Northeastern University, Dalian Jiaotong University and Benxi Steel Party School, a reserved senior management talent education and training system with business management core curriculum as the main body and management practice combined with theoretical research is formed. Since 2018, a total of 131 outstanding management and technical personnel have completed half year of course study in three phases (see Figure 3).





6.3 Career Development

The company establishes professional development channels for the four major groups of management, business, technology and operation, and forms a unique career development model (see Figure 4). In response to the training of senior management personnel, the company revised the "Administrative Measures for the Reserve Cadres of Benxi Steel Group Co., Ltd" and the "Administrative Measures for the Selection and Appointment of Leading Cadres of Benxi Steel Group Co., Ltd.", implemented the MBA reserve cadre off-job training, and established a pool of reserve talents; for the training of reserve talents, the company formulated the "Guiding Opinions on the Career Planning Management of College Graduates in Benxi Steel Group Co., Ltd" to help young talents accurately position their development direction, determine short-term development goals, and design career development routes. The company implements the all posts placement system every two years in major positions, and organizes open competition for core business and technical positions such as senior management, sales and R&D throughout the company, and organized six times of recruitment throughout the company in 2018, involving more than 80 key positions.

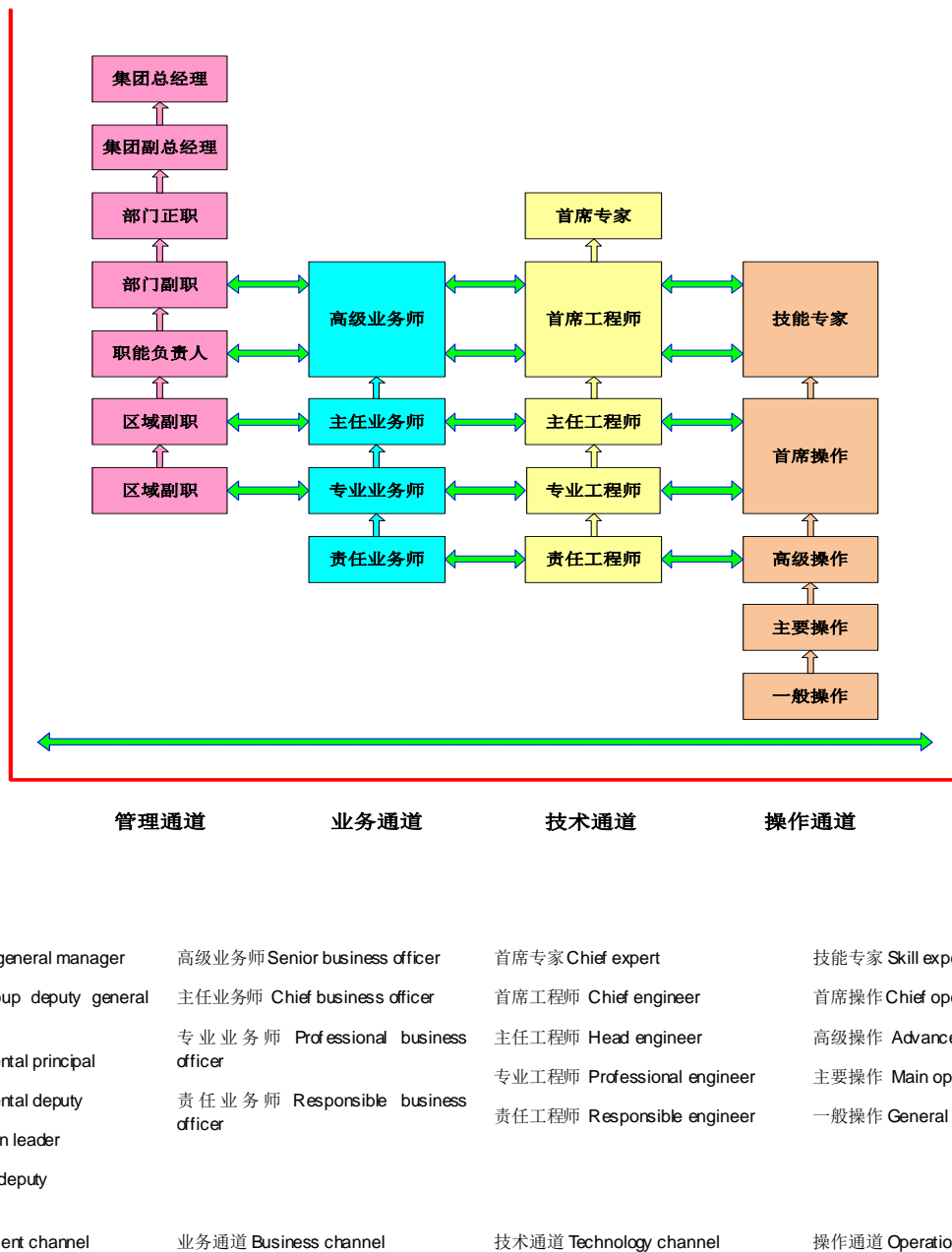


Figure 4. Staff Career Development Channel



6.4 Compensation and benefits

The company has established a sound performance management system, based on the determined annual production and operation guidelines, policies and management objectives, assessing the operational indicators of various functional departments and factories and mines and the completion of work tasks, setting key performance evaluation indicators, and implementing monthly assessments. It adheres to the guiding ideology of effectively motivating employees to work, the combination of universal incentives and precise incentives, and provides precise incentives for special work and outstanding contributions. A de-administrative broadband compensation system was implemented, and compensation incentives were implemented according to professional group (see Figures 5 and 6). It adheres to the "effectiveness-oriented" and implements the "employee's scale payment" policy, so that the employees can share the dividends of labor efficiency improvement; it shall further strengthen the link between compensation and performance, and realize the "increasing or reducing the income according to performance" of employee income.

No The 1st Grade The 2nd Grade The 3rd Grade The 4th Grade The 5th Grade The 6th Grade The 7th Grade The 8th Grade The 9th Grade The 10th Grade

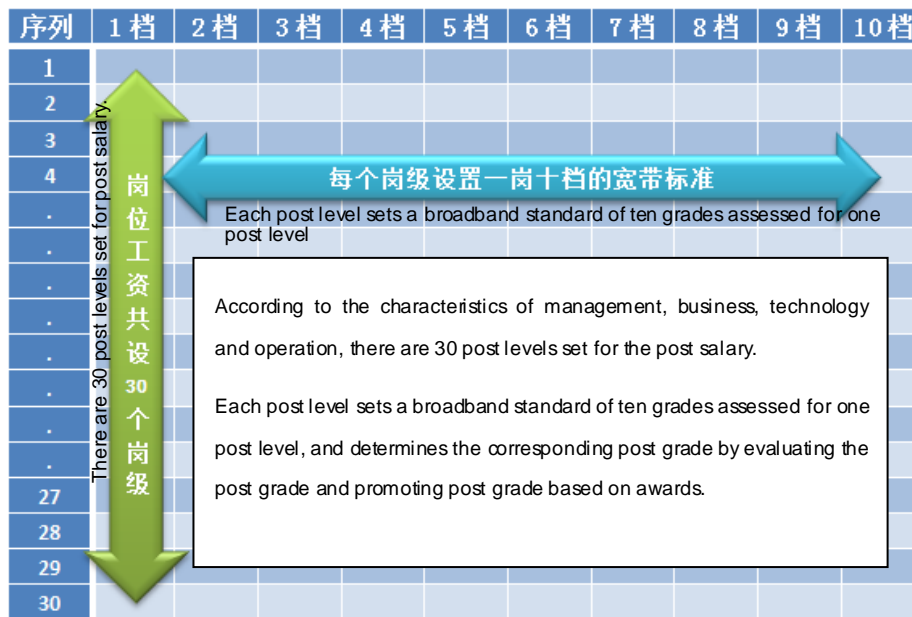


Figure 5. Broadband compensation system of the company

Personnel type	Incentive-oriented	Salary	Bonus	Annual salary	Commission	Project salary	Agreement salary
Operation personnel	Skill type	▲	▲				
Junior and intermediate management technician	Position promotion type	▲	▲				
Senior manager	Profit sharing type			▲			
Technical research and development personnel	Result type	▲				▲	
Marketing personnel	Performance type	▲			▲		
Special talent	Flexible					▲	▲

Figure 6. Salary incentive types of the company

The company establishes and implements a multi-level insurance and welfare system to provide employees with effective protection and enhance the company's cohesiveness and centripetal force. In terms of statutory benefits, the company fulfills its responsibilities and obligations in accordance with the law and pays all social insurance in full and on time, including basic pension insurance, medical insurance, unemployment insurance, work injury insurance and housing provident fund. In terms of corporate welfare, the company provides enterprise annuity



plans, health checkups and other projects and purchases commercial accident insurance for employees. At the same time, in order to alleviate the housing pressure of young talents, the company implements college graduates' housing allowances, housing subsidies, post-doctoral apartments and other policies, so that employees " Living and working in peace." The company provides employees with health care, health checkups, general screening and treatment for female disease screening, so that employees can share the fruits of enterprise development. In 2018, the plate company organized a total of 2,849 employees to rehabilitate and used a total of 1.62 million yuan in recuperation funds. A survey of female diseases was conducted for 3,091 female workers.

6.5 Employee Care

The company exemplarily complies with the "Labor Law", "Labor Contract Law", "Trade Union Law", "Social Insurance Law" and other laws and regulations, respects the human rights of employees, cares for employees, earnestly protects the interests of employees, and signs and performs labor contracts with employees according to law. It earnestly implements the all-employee labor contract system, collective contract system, and employee representative assembly system, and establishes and improves the trade union organization, labor dispute mediation organization, labor laws supervision organization, labor protection supervision and inspection organization, and gives full play to the advantages of the sound and perfect system of the workers' congress system, boosts equal consultation and collective contract work in-depth and solidly to ensure the stability of the workforce and promote the construction of a harmonious enterprise. In 2018, the company organized a three-times workers' congress to implement democratic management of employees, standardized the implementation of relevant procedures, and ensure that matters involving the vital interests of employees were effectively resolved.

The company attaches great importance to the democratic management of enterprises, and through various forms of democratic management, such as the Staff Representative Conference and the Openness of Factory Affairs, smoothes the channels for democratic participation of employees, and extensively solicits and repeatedly listens to opinions and suggestions of employee representatives before the formulation and implementation of various systems involving the vital interests of employees; relevant departments modify and improve the program to protect employees' right to know, to participate, to express, and to supervise.

The company strengthens the care for employees, organizes face-to-face talks, holds symposiums to understand their psychological needs and trends, and solves problems in their work and life. At the same time, in order to enrich employees' amateur cultural life, it organizes activities such as college sports games, speech contests, associations, outstanding college students' commendation and entry ceremony, helps to establish QQ group, WeChat group, etc., to create a harmonious atmosphere, and make employees have stronger sense of belonging and feelings of happiness (see Figures 7 and 8).



Figure 7 The company held a college sports meeting



Figure 8 The company holds outstanding college students commendation and entry ceremony

The company implements precise poverty alleviation, so that the employees in difficulties feel the warmth of the party and the enterprise in a timely manner, accurately issued relief funds of 730,000 yuan allocated by the central government and the Provincial General Labor Union and the company distributed bailout money of 130,000 yuan for the workers in difficulty.

The company actively carries out the employee mutual aid protection plan to reduce the medical burden of employees. In 2018, employees handled mutual insurance, with an investment of 2.83 million; 2,783 people received claims, and the amount of claims was about 2.87 million yuan.

The company actively pays attention to the mental health of employees, and publicizes mental health knowledge through in-depth teamwork and psychological group training; it conducts 12 mental health lectures for grassroots units.

6.6 Public Benefit Support

The company attaches great importance to the social responsibility of the company, and fully assumes the public responsibility of the corporate legal person, actively participating in public welfare activities. The company plans systematically, clears key support areas, actively supports public welfare undertakings to achieve the harmonious development of enterprises and society.

The grassroots units of the company have set up volunteer teams with 820 volunteers registered at the Benxi Charity Federation. They actively participated in the plant greening activities in their spare time, went to the city's nursing homes and welfare homes to carry out voluntary labor, and carried out duty dedication day activity going to the municipal public parks to collect garbage which have established a good social image for the company and also reflected the excellent character of the enterprise workers in the new era.

The company has long been committed to public welfare support and always gives the achievements of enterprise development back to the society. In the past three years, an accumulated investment of 1,846,200 yuan was used to help and rescue, and an accumulated investment of 869,000 yuan for Autumn Assistantship for Students. The company was awarded the "Outstanding Contribution Award" by the China Charity Federation and was awarded the "China Charity Outstanding Contribution Award Unit" by the China Charity Federation for two consecutive sessions. The Benxi Steel Residents Task Force has directly invested a total of more than 3 million yuan in fixed support and coordinated to introduce various poverty alleviation funds of 8.58 million yuan for industrial poverty alleviation and infrastructure construction. The Shihuzi Village, which was assisted, achieved poverty alleviation in advance one year ahead of schedule. The company has been rated as an advanced unit for fixed poverty alleviation in Liaoning Province for many years.



VII. Annex

Questions and Answers of Shareholders

Q: Recently, Benxi Steel Group announced that it has been included as the unit reforming toward mixed system of Liaoning Province. May I ask the management: What is the benefit for the listed company Benxi Steel?

A: Benxi Steel Group Co., Ltd. actively responds to the relevant requirements and arrangements of the CPC Central Committee, the State Council, the Liaoning Provincial Party Committee and the provincial government on deepening the reform of state-owned enterprises, and actively promotes the reform of mixed ownership of state-owned enterprises. We promote the transformation of the operating mechanism of Benxi Steel Plate and Holding Companies, improve capital allocation and operation efficiency, perfect the modern enterprise system and corporate governance structure, and realize the complementarily, mutual promotion and common development of various ownership capital.

Q: Why does the company's parent company increase its shareholding in the company?

A: Based on the optimistic view on China's economic prospects and confidence in the future development of the company, the controlling shareholder of the company will increase its shareholding in the company with its own funds not exceeding RMB 300 million. The Company continues to pay attention to the completion of the shareholding increase plan and performs information disclosure obligations timely according to relevant regulations.

Q: What plans does the company have for future market value management?

A: The company believes that the core of market value management is to strive to achieve improved business performance. Companies that can achieve steady improvement in business performance can be recognized by the market for a long time. At the same time, good corporate governance and standardized operations are also important conditions for realizing market value increase.