



# 2018

## **Sustainability Report**

BAOSHAN IRON & STEEL CO., LTD.

# CREATION BEYOND VISION



# CONTENTS

SINCERITY COORDINATION ▶▶



one

## Message from Top Management

01



two

## About this Report

03

Our Commitment	03
Basis of the Report	03
Scope of the Report	03
Text Language and Issue Form	03



three

## Company Overview

04

Company Profile	04
Business Ethics and Values	06
Key Performance Indicators	06



four

## Sustainable Development Management

07

Connotation of Sustainable Development Management	07
Professional Systems Related to Sustainable Development	08
External Recognition of Sustainable Development	09
Disclosure of Supervision Information	10



five

## Eco-friendly Baosteel

11

Green Products	12
Green Manufacturing	16
Green Supply Chain	21



six

## Competitive Baosteel

23

Main Actions	24
Enterprise Competitiveness	26
Economic Value Created and Allocated	30
Investor Relations	32



seven

## Responsible Baosteel

33

Staff as Treasure	34
Community as Treasure	37
Shareholders as Treasure	38



eight

## Urban Steel Mill

39

Jointly Building Urban Ecological Environment	40
Helping Urban Industry Development	42
Jointly Building Better Urban Life	44



nine

## Appendix

46

Stakeholders Q&A	46
------------------	----



# MESSAGE FROM TOP MANAGEMENT

Manager



In 2018, the company was guided by Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era, fully implemented the spirit of the 19th Party Congress, firmly relied on the cadres and employees, seized the favorable opportunity of the market. We have achieved remarkable results in the following work such as Baowu integration, reform, and cost reduction, products manufacturing, R & D, market expansion and so on. The business performance has reached the best level in history, and the quality of operation has reached a new level. The asset quality has been further consolidated and the operation has been healthier and more efficient. In 2018, the company's total operating income was 305.20 billion yuan, achieving a total consolidated profit of 27.82 billion yuan. We have handed over a delightful and inspiring bright answer to the investors.

In 2018, Baosteel Co., Ltd. produced 45.92 million tons of iron, 48.49 million tons of steel, and 47.10 million tons of billet steel, which included 561,000 tons of uniquely-owned advanced products.

The total energy consumption for the year was 28.18 million tons of coal equivalent, and the comprehensive energy consumption per ton of steel was 581 kg of coal equivalent, which was 11 kg lower than the annual objective.

The annual investment ratio of R&D, sales ratio of new products and pilot production proportion of new products were 2.30%, 14.45% and 39.65% respectively in 2018; we applied for 1115 patents, among which patents for invention accounted for 87.98%; direct new returns generated from R&D amounted to RMB 3.405 billion. The annual fixed-asset investment reached RMB 12.63 billion.

Baoshan Base continues to play the flagship role in the steel-making sector of Baosteel Co., Ltd., making significant contributions to achieve the No.1 among the domestic counterparts and rank top 3 among global steel enterprises. The construction of urban steel mills, product structure optimization, and smart manufacturing upgrades have steadily advanced in Baoshan Base. The business performance of Qingshan Base has grown steadily, and the operational vitality has continued to increase. The annual profit has been the best performance since its 60-year operation. The centralized management system and management efficiency have been gradually improved. Dongshan Base adheres to the "simple, efficient and low-cost" business philosophy, vigorously promotes deepening reforms, and digs deep into internal potential. Production and operation performance and total profit are much better than expected; the main process achieves stable production and high yield, and the cost competitive advantage is prominent. The cost of molten iron is among the best in China's steel industry. The Meishan base has overcome the impact of strict coal consumption constraint, the pressure of environmental protection and control, the internal reforms, and the superimposed test of future transformation and development, and breaks the history record in terms of business performance.

The company's good operating performance, efficient operational efficiency, stable asset and liability levels and ample operating cash flow have been highly recognized by the capital market. In November 2018, the Moody's upgraded the company's credit rating from Baa1 to A3, and S&P upgraded the company's credit rating from BBB+ to A-, and gives a rating outlook remained "stable". The three major international

rating agencies, Standard & Poor's, Moody's and Fitch, respectively gave the company a long-term corporate credit rating of A-, A3, and A. The company continued to maintain the highest credit rating among the global steel companies. The company was highly appraised for its good performance.

In 2018, the company's project "Research, development and application of Energy-saving and environmentally friendly sintering technology and equipment" won the second prize of the National Science and Technology Development; "Technology, Application and Demonstration of JPG Grade Steel Plate Stabilization Manufacturing Technology for Automobile Lightweight" was awarded the China Iron and Steel Industry Association, which is the only special award for China Metals Association Metallurgical Science and Technology Award is ; Development and Application project of Baosteel's ultra-light steel body-in-white (BCB) won the "Service-Oriented Manufacturing Demonstration Project Award" by the Ministry of Industry and Information Technology. On October 26, 2018, Baosteel won the Special Award for Forty years of Management Practices since Reform and Open Policy

In 2019, the international situation is still complicated. The company will still face enormous challenges and pressures in production and operation such as safety production, environmental protection improvement, subsidiary turnaround, multi-base manufacturing capability improvement and product quality stability.

### Our overall management guiding ideology in 2019:

Adhere to the supply-side structural reform as the main line, adhere to the reform and innovation, unwaveringly promote the high-quality development, continue to maintain the first performance in the domestic market, strive to be a model for the high-quality development of the steel industry, and the leader of the future steel, celebrate the 70th anniversary of the New China with excellent performance..

### Our Overall Business Policy in 2019:

Driven by innovation, practice the one plus five strategy, and lay a solid foundation for development

Discover potential through benchmarking , turning crisis into opportunity, increasing efficiency and maintaining industry leadership

### The company's overall operating objectives in 2019:

To remain best business performance in the country, and challenge to be world top three in terms of per steel performance

To reduce cost of more than 2 billion yuan

To keep market share of 50% for cold rolled automotive sheet

To increase the employee's labor efficiency rate(formal) more than 8%

To achieve stage goals for new round of planning and major projects



Manager

**According to the company's general management policy and business objectives in 2019, combining with the planning project and the requirements of China Baowu Group, the company will focus on the following aspects during the year:**

- Adhere to high-quality development and promote the implementation of a new round of planning. Through combining the annual budget and planning work, we will integrate the following 8 strategic business plannings into the company's 2019 work targets and actions in an orderly manner, such as multi-base collaborative manufacturing planning, product management planning, efficiency improvement planning, cost reduction planning, technological innovation planning, service leading planning, smart manufacturing planning, and urban steel plant planning..
- Comprehensively promote deepening reforms and continuously release the vitality of development. We will promote the implementation of the "Double Hundred Actions" comprehensive reform implementation plan; continuously optimize enterprise management and further improve labor efficiency; normalize the work of "slimming and healthy body" and continuously improve the quality of the operation of the whole sub-subsidiary.
- Deepen the construction of multi-manufacturing base management mode and promote the integration of four bases. Further improve the recognition and re-implementation of "the same language, the same standard, the same platform, the same culture" ; promote the annual plan and achieve the milestone goal; combine the smart manufacturing to improve the professional management efficiency and ability.
- Continue to deepen cost reform and promote the implementation of the new three-year cost reduction plan. At the company level, we will adopt a unified principle and method to realize cost reduction measures of the four major bases. We will continue to deepen the four-base benchmarking. The cost of hot metal benchmarking is based on the Dongshan base. The difference of hot metal cost between Baoshan and Dongshan is controlled less than 100 yuan/ton, and the difference between Meishan, Qingshan and Baoshan is controlled less than 100 yuan/ton.
- Promote scientific and technological innovation in an all-round way to ensure the leading position in the industry. Strengthen the leading role of technological innovation planning, improve the technical level of the field; vigorously promote subversive, forward-looking and breakthrough technology research and development; increase the research and development of differentiated varieties; launch a new round of "Golden Apple" plan; promote multi-base technology synergy; Integrate national and local science and technology innovation systems.
- Improve multi-base collaborative manufacturing capabilities in terms of product quality and cost. We will strive to synchronize the product quality among different bases, and keep the manufacturing process stable: Baoshan base shall promote low-carbon high-efficiency, high-quality and low-cost production in iron and steel making processes; Qingshan base explores low-carbon high-efficiency, low hot metal ratio and efficient operation mode; Dongshan base shall further accelerate the improvement of pre-iron-making processes to make sure that the annual production plan targets get completed. The Meishan base shall overcome the impact of coal limitation and maximize the release of system capacity and optimal control of manufacturing costs.
- Comprehensively promote product structure optimization and create a new marketing situation. Strengthen market development, ensure

market share of key varieties; deepen mutual supply synergy, explore new modes of multi-base real estate sales operation, comprehensively ensure the balance of production and sales; innovate homogenized product marketing new model, achieve fast, low-cost, premium sales; promote customers and Product services, enhance the ability of integrated solutions; promote the construction of overseas supply chains and enhance the ability of international operations.

- Fully implement the new environmental protection requirements of the steel industry and build an ecologically harmonious demonstration urban steel mill. Baoshan Base promotes a new round of urban steel mill planning and a new round of emission reduction projects of Shanghai Clean Air Project to ensure that the project is completed by time; Qingshan Base accelerates the construction of environmental protection projects, the implementation of iron ore plant raw material yard treatment projects, and smoke Gas desulfurization and denitrification, steel slag treatment process transformation and other projects to improve the overall compliance capacity; Dongshan base should steadily promote the implementation of ultra-low emission transformation projects; vigorously promote smart energy and environment and green smart logistics, and build environmental management informationization with pollution permit as the core and the post-certification management of the sewage permit; the Meishan base combines the transformation development of the base, and promotes the construction of some important projects.
- Deeply explore the practice of smart manufacturing and become the leader of domestic steel enterprises. The level of intelligent equipment is upgraded from the current process (point) and factory (line), and the combination is expanded into a process (face); the professional level (smart factory, intelligent interconnection) increases the pace of digital filling, initiates intelligent research, and forms a systematic breakthrough; The IT basic level focuses on cloudization and big data, and big data and artificial intelligence applications form breakthroughs and face new breakthroughs.
- Optimize the reasonable inventory model and improve the long-term management and control mechanism of working capital. We will further develop the long-term management and control mechanism of working capital landing and coverage and further strengthen the management of operation capital to respond to changes in the market environment and actively create free cash flow.
- Enhance the quality of the workforce, improve employee satisfaction and loyalty, and initiate the systematic inventory and construction of the technical talent team. We will strengthen incentives for technical talents' achievements and contribution; improve personnel training systems and further improve employee welfare.
- Further strengthen responsibility and responsibility and improve the security system support capability. Improve safety management and control capabilities, effectively implement safety process management; strengthen hidden dangers

**\*Note:**

Baoshan Base refers to Baosteel's manufacturing site in Shanghai and it is also called as headquarter base, including the directly-controlled factories and departments, the Tube, Pipe and Bar Business Unit, the BNA;

Qingshan Base refers to the Wuhan Iron & Steel Co., Ltd. or WISCO;

Dongshan Base refers to Baosteel Zhanjiang Iron & Steel Co., Ltd. or Zhanjiang Iron & Steel Co., Ltd.;

Meishan Base refers to Shanghai Meishan Iron & Steel Co., Ltd.





# ABOUT THIS REPORT



## Our commitment

The Board of Directors of the Company and all its members guarantee that this Report is free from any false records, misleading statements or major omissions, and hereby undertake individual and joint liabilities for the authenticity, accuracy and completeness of the information contained in this Report.

## Basis of the report

This Report is compiled mainly based on Global Reporting Initiative (GRI) Sustainability Reporting Guidelines (Version G4) and Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR2.0). Meanwhile, the Report is compiled by making reference to the following documents including 2009 Report Work Memos of Listed Companies No. 1-Compilation and Deliberation of Internal Control Report and Corporate Social Responsibility Report issued by Shanghai Stock Exchange, the Guidance for Compilation of Report of Company Performance of Corporate Social Responsibility, the Notice on Strengthening Undertaking of Social Responsibility by Listed Companies and Issuance of Guidelines of Shanghai Stock Exchange on Environmental Information

Disclosure of Listed Companies, Worldsteel Sustainability Indicator Reporting Guide 2017 and World Bank Eco2cities Sustainable Framework.

## Scope of the report

Unless otherwise specified, this Report mainly describes such business operations as economic, environmental and social work of all production units for the main steel business of Baosteel Co., Ltd. (including the Company Headquarters Base, the Tube, Pipe & Bar Business Unit, Wuhan Iron & Steel Co., Ltd., Shanghai Meishan Iron & Steel Co., Ltd., Baosteel Zhanjiang Iron & Steel Co., Ltd., Baosteel Huangshi Coating Sheet Co., Ltd., Baosteel Special Steel long prod-

ucts) and such organizations as the Baosteel Central Research Institute, Shanghai Baosteel International Economic & Trading Co., Ltd, Shanghai Baosight Software Co., Ltd. from Jan. 1, 2018 to Dec. 31, 2018.

CNY is adopted as the unit of the financial data in this Report. For the purpose of convenient reference, you may use the exchange rate of 1USD=6.8632CNY for calculation (as per the benchmark exchange rate issued by the People's Bank of China on Dec. 31, 2018). If euro is adopted, it is recommended using the exchange rate of 1EUR=7.8473 CNY for calculation under the same standard.

## Text Language and Issue Form

This Report is published in both Chinese and English. In case of any discrepancy between the two versions, the Chinese version shall prevail.

This Report is issued to readers in print and PDF electronic document formats. The PDF file can be downloaded and read from the website of Baosteel Co., Ltd. (<http://www.baosteel.com/>). To reduce impact on environment, we advocate that readers may download and read the electronic version as far as possible and we are going to reduce the quantity of printed version year by year.

Recycled paper is adopted for the printed version of this Report. In order to save the use of paper, we control the length of the Report to the greatest extent. For more information that is not included in the Report, you may visit the website of Baosteel Co., Ltd. or read the annual financial statements of the Company.

**In case of any question about the content of this Report, please contact us by phone or letter at the following address:**

Baosteel Iron & Steel Co., Ltd.

No. 885, Fujin Road, Baoshan District, Shanghai, the RPC

Postal code: 200941

Tel: 0086-21-26646114

Fax: 0086-21-26649000

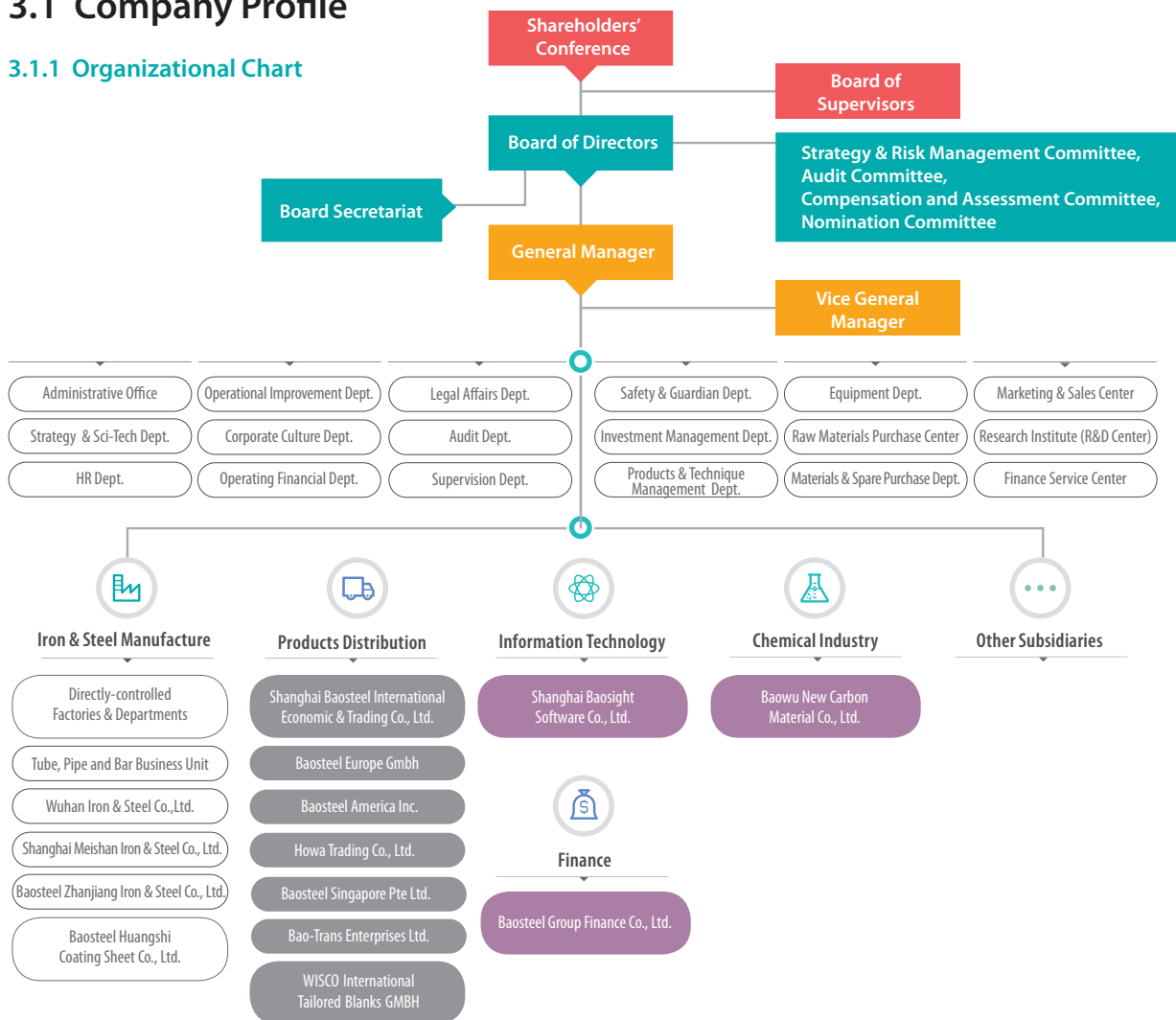
E-mail: [webmaster@baosteel.com](mailto:webmaster@baosteel.com)

# COMPANY OVERVIEW



## 3.1 Company Profile

### 3.1.1 Organizational Chart



Note:

1. Valid till Dec. 31 2018;
2. The Luoqing Management Dept. is cancelled, and the Baosteel Special Steel and Long Material Company is now managed Baosteel Tube, Pipe and Bar Business Unit



### 3.1.2 Controlling shareholders and Actual Controllers

Description	China Baowu Steel Group Corporation Limited
Unit leader or legal representative	Chen Derong
Date of establishment	Jan. 1, 1992
Principal business and operation	China Baowu Group is a government authorized investment organization and a state-owned holding company, mainly operates state-owned assets within the scope of State Council, and conducts relevant financial investment and operation.

05

#### Stock rights of other listed companies at home and abroad which Baowu Group as controlling shareholder and stakeholder

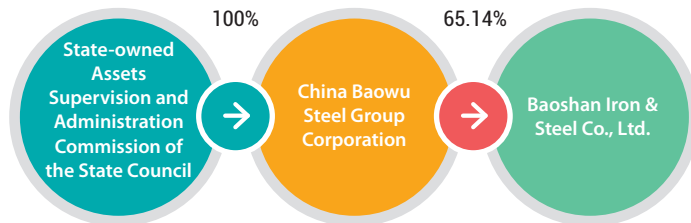
By the end of Dec. 31, 2018, China Baowu Group directly or indirectly holds above 5% stock rights of other listed companies as following: Bayi Iron & Steel (50.02%), SGIS Songshan (53.05%), Shanghai Baosight Software Co., Ltd.(50.80%), Shanghai Baosteel Packaging Co., Ltd.(59.89%), China Pacific Insurance (14.93%) and New China Life Insurance (12.09%), Hangzhou Iron & Steel Co., Ltd.(20.18%).

#### Controlling shareholders and actual controllers

Its actual controller is the State-owned Assets Supervision and Administration Commission of the State Council.

#### Changes in controlling shareholders and actual controllers

There was no change in the controlling shareholder or the actual controller during the reporting period.



#### Other institutional shareholders with more than 10% shares

As of the end of the reporting period, there is no other institutional shareholder with more than 10% shares of Baosteel Co., Ltd.

### 3.1.3 Changes in Share Capital

Please refer to the annual financial report of Baosteel Co., Ltd. for changes in its share capital, and no more information is given here.





## 3.2 Business Ethics and Values

### Core values: Sincerity & Coordination

**Sincerity:** be loyal and keep faith. The Company and its employees shall be loyal to the motherland, people, enterprise and mission; and keep faith with investors, shareholders, users and suppliers. The Company shall keep faith with its employees, employees shall be loyal to the Company, and employees shall keep faith with each other.

**Coordination:** to achieve a common goal shoulder to shoulder. Coordination contributes to effective integration of enterprise resources, giving play to the effect of integration, and realizing the maximization of overall profits and the integral value.



## 3.3 Key Performance Indicators

### 3.3.1 Operating Indicators

By the end of 2018, main product data and operating revenues are as shown in the table below:

Monetary unit: RMB 100 million

Item	2018	2017
I. Total operating revenue	3052.0	2895.0
II. Total operating cost	2819.3	2679.8
Including: operating cost	2590.8	2484.3
Selling expenses	34.9	33.7
Management cost	59.3	54.2
Financial expenses	70.3	42.1
Asset impairment loss	43.7	33.7
Investment income	2.3	11.3
III. Operating profit	41.2	30.4
IV. Total profit	281.8	249.2
V. Net profit	278.2	240.4

### 3.3.2 Social Contribution Value per Share

In 2018, social contribution value per share of Baosteel Co., Ltd. is RMB 2.746 per share:

	Basic earnings per share: RMB 0.970 per share
+	Tax revenue to the country within the year: RMB 0.943 per share
+	Salary paid to employees: RMB 0.693 per share
+	Interest on borrowings paid to creditors such as bank: RMB 0.138 per share
+	Value created for other stakeholders such as external donation: RMB 0.002 per share
-	Other social cost caused by environmental pollution, etc.: RMB 0 per share
	Social contribution value per share: RMB 2.746 per share



# SUSTAINABLE DEVELOPMENT MANAGEMENT

PART 4



## 4.1 Connotation of Sustainable Development Management

### Our Mission

Creation Beyond Vision

### Company Vision

To build itself into the most globally competitive iron and steel enterprise and a listed company with the greatest investment value.

- Dare to be the first, striving for first-class, being brave in self-denial, transforming and innovating actively, catching up with the strongest competitors, and leap from followers to leaders.
- Creating performance, contributing value, and continuously reward the trust and expectation of shareholders and investors with outstanding performance.

### Sustainable development vision

To be the leader in iron & steel technologies

To be the best practitioner of environmental friendliness

To be a corporate model of mutual development of employees and the company

### Basic Connotation of sustainable development:

#### To be the leader in iron & steel technologies;

Establish the leading position in terms of iron & steel technologies, and improve the value contribution of technical innovation.

#### To be the best practitioner of environmental friendliness:

**01.** Strictly observe national energy conservation and environmental protection laws, regulations and standards and perform the international environmental convention. Complying with environmental protection laws and regulations is our minimum standard;

**02.** Implement the strictest internal control standards, improve production processes, optimize the energy structure, reduce energy consumption, lower energy cost, and continually reduce the energy consumption and environmental impact by the enterprise and in the course of product use;

**03.** Ensure that no substance harmful to the environment and health which is prohibited by relevant laws and regulations is added deliberately. Meanwhile, reduce the harmful impact on the environment caused by products within their service life;

**04.** Promote the reduction, reuse and reclamation of industrial wastes and help the cyclic utilization of urban wastes;

**05.** Give priority to suppliers and subcontractors with good environmental protection performance, improve the consciousness and performance of suppliers in terms of sustainable development, actively provide green solutions for customers, and devote itself to jointly building a green industrial chain;

**06.** Promote continuous improvement of partners in terms of energy conservation and environmental protection management and performance, issue product environmental statement based on life cycle assessment, publicize the environmental performance of core products to facilitate customers and other interested parties to compare impact during full life circle of different products;

**07.** Develop and promote products and systems with high energy efficiency and high resource efficiency, propel the R&D and promotion

of energy conservation and environmental protection technologies to share with users advanced environmental design concepts and technologies, and provide the society with products and services with excellent environmental performance;

**08.** Keep a watchful eye on climatic change, take an active part in domestic and overseas energy conservation and environmental protection exchange and cooperation, improve the ecological environment on the earth; actively cooperate with governments, enterprises and conduct international cooperation, carry out popularization and application of international research achievements, and achieve synchronous development with advanced energy conservation and environmental improvement technologies of various countries;

**09.** Improve the awareness of environmental protection and ecological harmony among employees, and promote environmentally friendly behaviors of employees in terms of work, life, social participation, etc.

**10.** To be an urban steel mill jointly building wonderful life

- Actively respond to urban ecological red line protection and planning implementation, continue to improve the ecological landscape of industrial park, and synergistically improve the local environmental quality;
- Actively respond to the city's development strategy of resource conservation and environmental friendliness, and implement positive mechanism for controlling the amount of resource consumption and pollution reduction;
- Get into the swing of urban ecological civilization construction, and become an integral part of city service function and industrial culture;
- Get into the swing of community co-construction, pay close attention to the opinions and requirements of interested parties, and seek harmonious development.

### To be a corporate model of mutual development of employees and the company:

**01.** Taking responsibility jointly: the enterprise and employees share joys and sorrows and jointly shoulder the responsibility related to employees' growth and development; employees and the enterprise are a community of common destiny, and jointly shoulder the responsibility of enterprise in facing up to challenges and seeking sustainable development. Taking responsibility jointly is an important basis for mutual development of employees and the company.

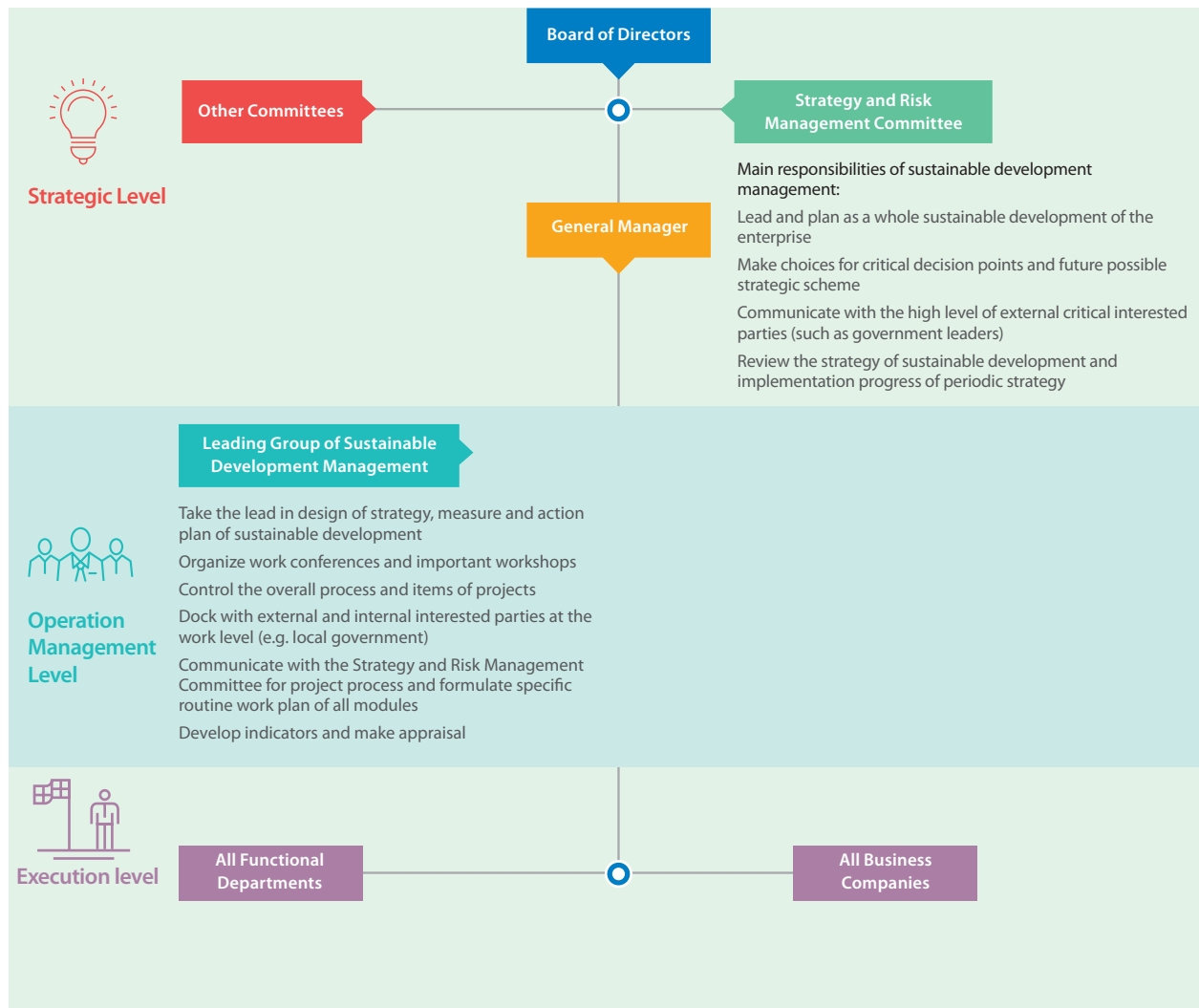
**02.** Co-creating value: the enterprise provides a stage and environment to help employees realize the value of life; employees make contributions to the enterprise to help the enterprise realize value maximization. Co-creating value is a prerequisite for mutual development of employees and the company.

**03.** Sharing achievements: the enterprise and all employees creating value share development achievements, and the enterprise meets the material and cultural needs of its employees; employees and the enterprise share individual contributions and achievements to meet the needs of enterprise for improving operation performance. Sharing achievements is the internal impetus for mutual development of employees and the company.

**04.** Mutual promotion: the enterprise provides resources and platforms to promote improvement in skills and quality of employees; employees inspire their potentials up to the hilt to promote realization of the strategic target of the enterprise to improve capacity. Mutual promotion is the goal of mutual development of employees and the company.

## 4.2 System support related to Sustainable Development

### 4.2.1 Organizations for Sustainable Development



## 4.2.2 System Guarantee of Sustainable Development

### Integrating Management system

Four bases of Baosteel have been certified to the following management system\*, including the Quality management system, Energy management system, Environment management system, Occupational Health and Safety Management System, Measuring Management System and Standards of Laboratory Management. The company complies to the requirement of the above management systems, improving the management and raising its profit.

System Category	System Name
Quality management system	ISO9001
	QS9000/ISO TS16949/IATF16949*
Environment management system	ISO14001
Energy management system	ISO50001 (GB/T23331)*
Occupational Health and Safety Management System	ISO45001/OHSAS18001*
Measuring Management System	ISO10012-1
Standards of Laboratory Management	ISO/IEC17025/ISO10012-1*

#### Notes:

- 1) Qingshan Base is not certified with QS9000;  
Dongshan Base is not certified with QS9000 or ISO TS16949  
Meishan Base is not certified with QS9000 or ISO IATF16949
- 2) All Bases are certified with ISO14001 and ISO50001 (GB/T23331) ;
- 3) Occupational Health and Safety Management System: Baoshan Base and Dongshan Base are certified with ISO45001, Qingshan Base and Meishan Base are certified with OHSAS18001
- 4) Standards of Laboratory Management: Baoshan Base, Dongshan Base and Meishan Base are certified with ISO/IEC17025, Qingshan Base is certified with ISO10012-1.

### Carbon Trading Pilot System

Baosteel Co., Ltd. has actively participated in the pilot work of carbon emission trading of Shanghai Municipal Government, issuing the Measures of Baosteel Co., Ltd. for Carbon Asset Management. And it started the carbon cost accounting data system project to strengthen the carbon emission data management. Meanwhile, the company is in active cooperation in basic work such as preparation of various data for startup of national carbon market. In 2018, the company has completed its carbon quota settlement on time.

### Supervision and Credit Management System

Baosteel continuously promotes its construction of supervision and credit management system. It explores the integration of auditing, discipline inspection and supervision, patrol inspection, deliberating the Communication System of Baosteel Inner Discipline Inspection. Based on the requirement of IATF 16949, the Company deliberating the Guide for Employee Anti-corruption by focusing on anti-corruption, illegal gift receiving. The Guide goes with Baosteel negative list of Engineering, Procurement and Sales to formulate a 1+3 institutional system of being honest and clean for Baosteel Employees.

### Clean production auditing

In 2017, Baosteel has passed the new round audit of clean production.

## 4.3 External Recognition of Sustainable Development

In the Chinese metallurgical industry, Baosteel Co., Ltd. was the first to pass the ISO14001 environmental system certification and is one of the first companies to pass the Energy Management System(GB/T23331-2009) certification in 2010. Baosteel Co., Ltd. is among the first batch awarded titles such as National Environment-friendly Enterprise, Cleaner Production and Environment-friendly Enterprise in the Chinese iron & steel industry and Green Company in China by the China Entrepreneur Association. In 2017, Baosteel's practice for complementing sustainable development won the first prize of the Annual Management Innovation by the Chinese Iron & Steel Association. Baosteel Co., Ltd. won the second prize of the 2017 National Science and Technology Progress Award for its project "Research and Application of Energy-efficient and Environmentally-friendly Sintering Technology and Equipment". In 2018, Baosteel Meishan Base's office area, Energy and Environmental Protection Department, Ironmaking Plant and Baosteel Chemical Meishan Branch were awarded the "Shanghai Garden Unit" for 2015-2017.





● Major award titles of Baosteel Co., Ltd. in 2018

Major Event/Title	Granting Organization
Highest credit rating in global iron & steel industry	S&P, Moody's and Fitch Ratings
2017 China Green Development Forum and China Green Development Alliance Annual Meeting - 2017 Green Enterprise Management Award	China Environmental News Agency
The "Golden Round Table Award" of the 13th China Listed Company Board of Directors, and Baosteel Co., Ltd. won the "Best Board of Directors". This is the second time Baosteel has won this honor.	China Association of Listed Companies, Press of Board of Directors
China Brand Day, 2018 "Top Ten Excellent Steel Enterprise Brands", Baosteel Co., Ltd. tops the list	China Metallurgical News Agency
Ranking 24th in Top 500 Chinese enterprises in 2017	Fortune(China)
Zhanjiang Base Project won the highest honor award in China's construction industry - "Luban Award"	China Construction Industry Association
Special Award for Management Practice for 40 Years of Reform and Opening up	Harvard Business Review (Chinese version)

● Major award titles of China Baowu Group in 2018

As an important holding company of China Baowu Group, Baosteel Co., Ltd. made tremendous contributions to China Baowu Group in winning the following honors

Major Event/Title	Granting Organization
Selection into Global Top 500 in consecutive 15 years, ranking 162th	Fortune
Ranking 2th in Shanghai Top 100 Enterprises	Shanghai Enterprise Confederation, Shanghai Enterprise Directors Association, Shanghai Federation of Economic Organizations

## 4.4 Disclosure of Supervision Information

Baosteel Co., Ltd. strengthens production process management and environmental risk control. The compliance rate of the on-line monitoring for discharges of key pollution sources reached 100% and there was no significant environmental risk event throughout the year.





# ECO-FRIENDLY BAOSTEEL

PART 5



The company continuously push forward the strategy of “green production, quality goods and smart manufacturing” and “building an urban steel mill characterized by city-industry integration, ecological friendliness and harmony”, which is focused on 1+5 capacities (multi-base management, cost reform, technology leadership, service first, smart manufacturing and urban steel mill), so as to gain the new developmental impetus of building a world first-class steel company.



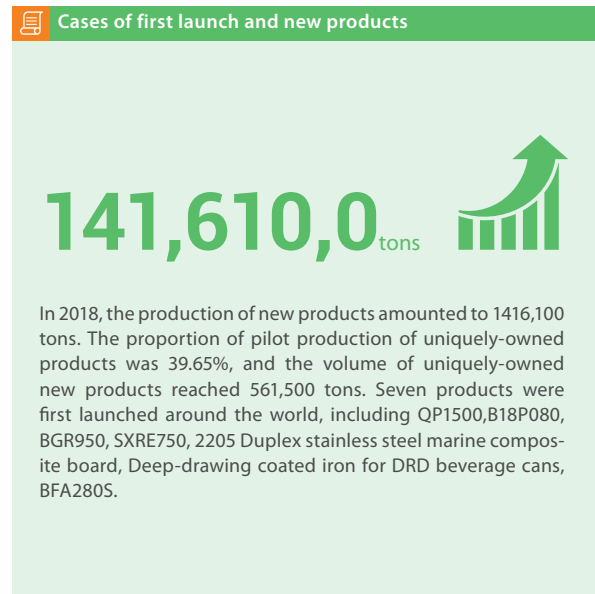
## 5.1 Green Products

### 5.1.1 Green Steel Products

Baosteel Co., Ltd. actively seeks the green development and low-carbon solution for the entire industrial chain. The Company specializes in production of such high-tech and high-adding-value steel products as carbon thin steel, heavy plates and steel pipes with high technique and high value-added. In addition, the Company has formed the strategic product group represented by high-grade automotive sheet, highly efficient and high-grade non-oriented silicon steel and oriented silicon steel with low temperature and high magnetic induction and tin plate packing material. Meanwhile, it occupies a leading position in such five domestic carbon steel product markets as cold rolled, hot rolled, heavy plate, steel pipe and so on.

#### Product Structure

Baosteel Co., Ltd. owns domestically leading series of products: such main varieties as automotive steel and silicon steel occupy the leading position in the domestic high-level markets. The quality control level is among the forefront of the industry. Partial varieties including cold rolled super-strength steel have reached the international advanced level and some varieties have realized first launch around the world.



#### Baosteel Green Product

Baosteel Co., Ltd. aims to promote the overall environmental performance of upstream and downstream of the steel industry, including suppliers, producers and consumers, with the goal of "optimal environmental performance in the whole society". The company publishes a product environmental statement based on Life Cycle Assessment (LCA), which publicizes the environmental performance of core products and provides objective data for environmental performance comparisons among same products of the same industry or among different products of different industries.

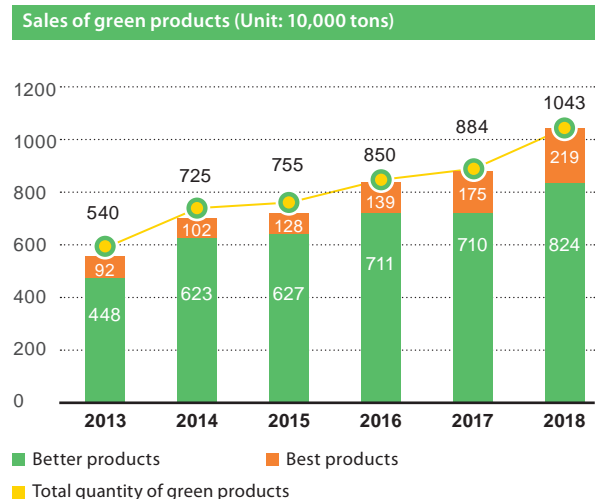
In 2018, the company updated of the "Definition and Classification of Carbon Steel Sheet Green Products" and released it to various manufacturing bases. The new version of the rules applies to Baosteel's 14 categories of products, and further improved the BPEI index evaluation method based on the product LCA, using the product LCA evaluation results and BPEI index from 2015 to 2017 as the benchmark value, evaluating the products from the design, manufacturing, usage, recycling. It clearly introduces the concept of Baosteel "green products", and demonstrates Baosteel's operating results and social responsibilities from an environmentally friendly perspective, and promotes the development of Baosteel green products.

According to environmental performance, green products are divided into three grades: BASE (basic) type, BETTER (excellent) type, and BEST (top) type, which are defined as follows:

- ★ BASE (basic) type: Meet the requirements of national environmental protection regulations as the basic delivery conditions.
- ★ BETTER (Excellent) type: It has good environmental performance and has obvious characteristics in terms of product weight reduction, optimization of process, environmental protection, improvement of life and recovery performance, and is at the leading level in China.

★ BEST (Advanced): It has superior environmental performance, represents the development direction of the industry, adopts breakthrough technology to improve the environment, has obvious market prospects and economic benefits, and is at the leading level in the world.

**Note:** The BPEI Index, the Baosteel Product Environmental Performance Index, is used to evaluate the environmental performance of steel products throughout the life cycle of product design, manufacturing, use and recycling, including environmental performance index and processing, use and recycling of steel manufacturing processes.





## External Certification for Baosteel Green Products

All eight varieties of products of complete series of Baosteel Co., Ltd. passed the Intertek Green Leaf Mark certification. In 2017, Baosteel's products have also been certified for such industries as automobile, household appliance, crane, special steel and urban railway transportation. Baosteel tinplate was audited by second parties such as Ardagh, Nampak of South Africa and Lohakij of Thailand; it was reviewed by SMETA Social Responsibility Third Party.

Note: Intertek is one of the largest consumer goods testing, inspection and certification companies. Intertek Certification for Baosteel's green products is based on assessment of environmental protection, control of poisonous and harmful substances, energy efficiency and resource utilization efficiency, as well as product life, packaging and recovery.



### Users' Certification for automobile steel

Baosteel's manufacturing bases have passed the steel type and accessories certification of different automobile manufacturers and professional parts factories. The products cover hot rolling pickling, cold rolling, hot-dip galvanizing/alloying hot-dip galvanizing, electro-galvanizing, electrical steel. And automobile manufacturers includes: Nissan, Ford, Mazda, GAC Passenger Car, Honda, Toyota, Nissan, Guang Fike, Peugeot, FAW-Volkswagen, SAIC-GM, Shenlong, FCA, Jaguar, Land Rover, etc.

## 5.1.2 Typical Green Products

Based on the methodology of LCA, Baosteel actively develops "environmentally-friendly products" represented by such high-efficiency steel as electrical steel, high-strength steel, coated and galvanized products and weathering resistance products to reduce the steel usage amount from downstream users, extending the steel service life and improving the utilization efficiency of social resources. The products are widely used in such green energy fields as solar energy, nuclear power and wind power generation and other fields such as automotive, food packaging and railway carriage.

### ☆ High strength steel plate (AHSS): weight reduction and energy saving

High strength steel plate, characterized by high strength and long life, is a kind of sustainable green product. If high strength steel is used for automobile manufacturing, not only materials can be saved but also the passive safety level of automobiles can be improved.

### ☆ Electrical steel

Electrical steel is mainly divided into highly efficient non-oriented electrical steel and high magnetic induction oriented silicon steel. The iron cores of electric motors made from highly efficient non-oriented electrical steel instead of traditional electrical steel are characterized by obviously decrease no-load current, improvement in motor efficiency and improvement in comprehensive operating indicators. Oriented silicon steel is the ideal material for iron core used for low-energy-consumption transformer. The capacity of producing oriented silicon steel is an important sign of measuring the manufacturing technology level of a steel company. In 2018, Baosteel's non-oriented silicon steel suited for new energy vehicle motors were tested on Toyota/Ford/Volkswagen brands.



### ☆ Coated steel products: Low carbon and healthy

Baosteel coated steel are widely used in household appliances, food packaging, building and other industries. For example, Baosteel colored coating plate is used to produce communication machine cabinet, set-top box shell. The product is beautiful and has good corrosion resistance. Baosteel coated product is also widely used in food packaging, such as beverage packaging, can packaging. Baosteel's products continue to be thinned, achieving optimization of carbon emission reduction performance, achieving a 15% reduction in total carbon emissions from individual steel tanks

### ☆ High weather resistance products: low-carbon and weather-resistant

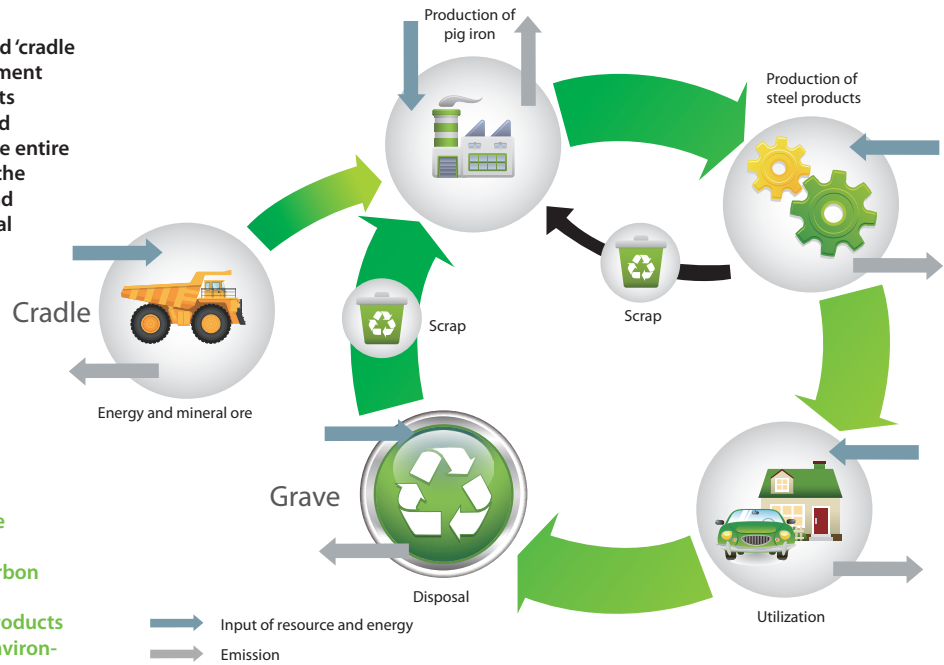
The high weather resistance products of Baosteel are widely used in manufacturing containers, railway carriages and automobile carriages. The new high weather resistance steel products researched and developed by Baosteel, under the same weather-resistant conditions, have higher strength; thus, high-strength emission reduction of containers are achieved, and the energy conservation and emission reduction of containers during service is improved.

### Exploration and Practice of Life Cycle Assessment of Baosteel's Products

The Life Cycle Assessment is a "cradle to grave" environmental management and analysis tool that quantifies the products' resource/energy consumption and environmental emissions from the entire product life cycle and evaluates its impact on resources, ecological environment and human health. Life cycle assessment has become an international tool for product carbon footprint calculation, the method for green product certification, and the basis for the release of product environmental statements. At the same time, with the vigorous implementation of various international green product evaluation standards and green product access systems, new green trade barriers is likely to generate new trade barriers.

In this context, Baosteel carried out research and application of steel product life cycle assessment (LCA), established a green life design and green manufacturing methodology and standard system based on the life cycle, developed model evaluation and application, and coupled with the upstream and downstream overall value chain environmental performance analysis, as well as the ecological design level of products, gradually formed a complete application system. In 2018, the company applied a full life cycle assessment method to redefine and improve Baosteel's "green product" evaluation method, which provided a quantitative basis for Baosteel's "environmental friendliness" analysis.

Life cycle assessment is a so-called ‘cradle to grave’ environmental management and analysis tool that quantifies its resource energy consumption and environmental emissions from the entire product life cycle, and evaluates the impacts of these consumption and emissions for resources, ecological environment and human body.



Life cycle assessment has become international:

- Tool for calculating product carbon footprint
- Method of identifying green products
- Basis for publishing product environmental claims

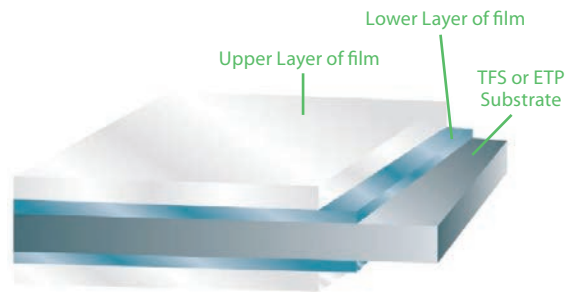


**LCA analysis for Baosteel Car Body (BCB)**

In 2018, the company established the LCA model of the BCB1.0 Plus accessories and assemblies. The model consists of BCB’s 16 assemblies and 240 parts, involving 53,000 pieces of data. By investigating the production process data of six vehicle parts processing plants, the model integrates LCA data of eight processing and forming technologies, including auto parts cold stamping, hot stamping, hydroforming, laser tailoring, roll forming, VRB thickening, laser welding, roll rushing and so on. The project completed a case study of ecological design, and carried out LCA evaluation for the six design schemes of the longitudinal beam small assembly, and made a comprehensive comparison from the perspectives of energy consumption and CO2 emission, and environmental indicators such as dust, SO2, NOx, and COD. The LCA evaluation results show that considering the steel plate manufacturing stage and the automobile use stage, Baosteel Gpa high-performance automotive steel plate process a reduction potential of 2.154 million tons of CO2 compared to ordinary steel (continuous cold plate). The use of BCB integrated technology can achieve 14.76 million tons of CO2 emission reduction if applied on 20 million vehicles.

**Application of LCA analysis to the environmental evaluation of Baosteel coated iron**

Baosteel coated iron is an environmentally-friendly and high-performance packaging material which is formed by thermal lamination of polymer resin film and steel plate, which eliminates the coating and curing process of traditional coatings, green production and low-energy consumption of film processing and downstream processing. The product has the characteristics of food safety, high corrosion resistance, etc. It is suitable for making a variety of cans and lids, and can be widely used in packaging of food, beverage and other industries. In the research and development process of Baosteel coated iron products, the LCA method was used for ecological design, and comprehensive and objective environmental impacts were carried out throughout the whole life cycle of raw material collection, production and processing, circulation and storage, consumption and use, recycling and final disposal. The LCA-based environmental performance declaration (EPD) for coated iron products was completed for the first time. LCA has become a powerful tool for eco-design of products.



**Research on Production Planning Optimization Based on LCA Method**

In the project of “Research and development of environmental performance evaluation of thin-film products represented by automobile panels”, the company has completed the research and development of simplified model of environmental performance evaluation of whole process, and proposed a comparison method of environmental performance of different process paths based on LCA method, and the logic of field data value of typical grades. This laid the foundation for optimal scheduling methods to achieve the goal of optimal overall environmental performance.



### 5.1.3 Green customer solutions



#### Solutions based on customer demand

01

Baosteel Co., Ltd. gives full play to the technical advantages of green steel products in R&D, forming, analysis and research into users' application technology, focuses on such aspects as technical service, product expansion, early vender involvement (EVI), integrated solution (package arrangement) and win-win scheme to meet special demands of customers and touch customers. "Early Vender Involvement" refers to that the material manufacturer involves in the early R&D phase of the downstream users to fully understand requirements of the user for raw material performance, so that materials with higher performance and personalized service can be provided for customers.



#### Baosteel QP Steel continues to promote the green transformation of car body steel

Baosteel quenched ductile steel (QP steel) has developed rapidly since its launch. In 2018, its sales volume exceeded 15,000 tons, which was more than 50% higher than the previous year. At the same time, Baosteel QP steel family has continued to grow and develop. On the basis of the original six family members, two new members of QP1500 and QP980-EG were added in 2018, focusing on the replacement of new steel types and improvement of problems, and the future steel for the body. Baosteel QP Steel has laid a solid material foundation for vehicle steel's green transformation, energy saving and emission reduction, and improved corrosion resistance of safety structural parts. It has realized the mass supply to Chinese brands, Japanese brands and European and American brands, providing a powerful development for the lightweight development of the automotive industry.

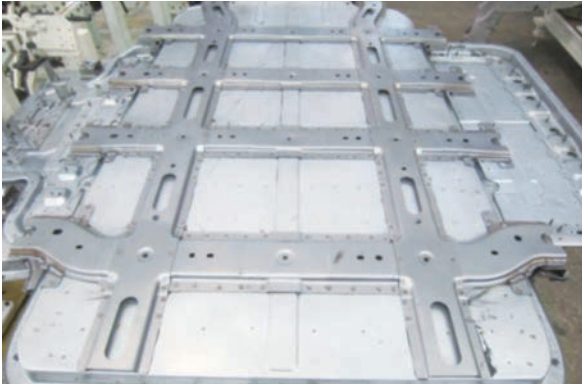


Figure: Baosteel 3rd generation QP steel utilized in new energy vehicle



#### Baosteel's high-strength lightweight battery pack solution unveiled at EVI Forum



Figure: Example of Baosteel battery package

Baosteel actively responds to the urgent need for new energy vehicles to reduce the weight of the vehicle body. From the aspects of high-strength thinning and material substitution, Baosteel has succeeded in improving the formability of the parts and the overall structural performance of the battery pack, while achieving lightweight battery packs. The battery pack has a weight reduction of 10.28 kg, which will help improve the endurance of new energy vehicles and further improve energy efficiency. The lightweight program and physical objects were successfully exhibited at the Xiamen EVI Forum.

#### Sustainable customer service concept

02

Baosteel Co., Ltd. follows the sustainable customer service concept, and actively pursues the domestic and overseas changes in laws and regulations and growth of green demands of users, carrying out various certification and assessments for various products, and timely follow-up of the 14th and 15th batch of the EU REACH Directive of Very Concerned Substances, organizing internal evaluation, and releasing the REACH compliance statement of Baosteel Products. Besides, the Company grasps the dynamics of personalized demands of users, timely organizes the second-party certification and makes corresponding commitments. Nearly 20 users from six industries such as automobile, household appliances and electronics, metal packaging and container, energy, communication and transportation, power transmission and distribution and building are involved. In recent years, Baosteel has successively organized the third-party product inspections and published 138 third-party inspection reports, with 8 varieties covered, such as pickling, cold rolling, hot galvanizing, electrogalvanizing, aluminized zinc and electrical steel. Results of the reports have shown that all products comply with laws and regulations of China RoHS, EU RoHS directive, REACH regulations, etc. The report shows that all products meet the relevant domestic and foreign regulations and other regulatory requirements.

#### Notes:

RoHS: The Restriction of use of certain Hazardous Substances in electrical and electronic equipment

REACH: REGULATION concerning the Registration, Evaluation, Authorization and Restriction of Chemicals.

QS080000: refers to a set of certification standards for hazardous matters, which is certified by the International Electrical Committee

#### Innovation for Customer Service

03

The company continued to strengthen user demand management, improving product quality, and established a one-to-one system for "stable supply users". It has completed the system for 390 users, and promoted 36 key quality improvement work. Explore digital marketing transformation by practicing the smart supply chain of automotive panels. The company accelerated the construction of the intelligent supply chain platform for automotive panels, and completed the smart supply chain user standard function promotion list and 8 pilot users; explored the application of big data technology, based on the marketing information system and the data foundation of the future stock data center construction, from the business Intelligent marketing, report visualization, trend prediction and risk warning design marketing business data analysis application scenarios. Comprehensive planning and promotion of new energy vehicle steel and overall solution for online and offline experience; Baosteel's overseas technology show entered the world's largest automobile manufacturing company Toyota; at the 4th Baosteel Automotive Board Forum, the parts display was fully modular. Actively promote multi-base logistics management improvement and supporting capacity building. The company started from the whole process of logistics cycle, to shorten the whole process logistics cycle, reduce the total logistics cost and improve logistics efficiency. Baoshan Base and Qingshan Base have realized the logistics resources sharing.

Customer satisfaction in 2018 was 92%.



## 5.2 Green Manufacturing

Baosteel Co., Ltd. stands on three functions of whole-process integrated steel mills (manufacturing of advanced steel products, high efficiency energy processing and conversion, comprehensive utilization of big amount of waste resources), sticks to the principle of giving priority to resources utilization efficiency and cyclical utilization "3R" (reduction, reuse and recycling), constantly reduces the resource and energy consumption during production via seeking low-carbon process path with continuous improvement; based on the full life-cycle environmental management concept, from the source prevention, process management and control to end disposal, advanced production processes and pollution control measures are adopted in an all-around way and process management is strengthened so as to complete the production process of steel products with lowest consumption and minimum discharge.



### 5.2.1 Indicators of Comprehensive Utilization of Resources and Energy

#### Energy indicators

The company's energy and resources utilization levels in 2018 are as following:

#### ● Main resource consumption in 2018

Type of Resource	Unit	Consumption
Finished product minerals of iron ore	10,000t	7460
Scrap steel	10,000t	778
Natural gas	100 million M <sup>3</sup>	1.6
Outsourced electric power	100 million KWh	110
Raw water	10,000 M <sup>3</sup>	15797

Notes: Data including the four manufacturing bases.

#### ● Trends of main energy indicators 2014-2018

Type of Indicator	Unit	2014	2015	2016	2017	2018
Comprehensive energy consumption per ton steel	%	100	98	98	96	94
Total recovered volume of complementary energy	%	100	113	116	226	229
Raw water consumption per ton steel	%	100	95	91	80	81

Notes: 1) Data is proportional to that of 2014

2) Date of 2014-2016 including Baoshan Base and Meishan Base

3) Date of 2017-2018 including Baoshan Base, Meishan Base, Qingshan Base and Dongshan Base



Compliance rate of hazardous waste disposal is

**100%**

Waste paint barrel was incinerated by the BOF in 2018

**8740** tons

### Indicators of comprehensive utilization of by-product resources

The company's utilization and disposal work for industrial solid waste and hazardous waste is progressing as planned, in which the comprehensive utilization rate of resources is greater than 99%. Hazardous wastes are entrusted to units with qualified hazardous waste disposal companies, and all the filing work in the Environmental Protection Bureau is completed. The safe disposal of waste can be traced back, and the compliance rate of hazardous waste disposal is 100%.

In order to promote the construction of urban steel mills and give full play to the its potential of solid waste consumption, the company has accelerated the development of the "zero-factory" model of solid waste. The waste paint barrel incineration project of the converter was transferred from emergency to pilot promotion. The external social paint buckets disposal has amounted to 8740 tons in 2018. The incinerator disposed of the self-produced hazardous waste amounting to about 4000 tons.

### 5.2.2 Energy-saving Management and Carbon Emission Reduction

Baosteel Co., Ltd. closely follows the cutting-edge technologies of low-carbon processes in the iron & steel industry, and sticks to the constant improvement path for whole-process technical energy saving, optimization of energy structure and productization of gas and chemical engineering. A wide range of advanced technologies in enhancement of heat transfer, recovery of low-grade waste energy, fluid system optimization, industrial furnace energy-saving, etc. are adopted. The application scale of new energy and the proportion of low-carbon fuel are being raised step by step.

#### Energy saving by management optimization

The company promotes the "three-stream one-state" energy value management system\*, focusing on key energy efficiency factors and key energy sources. In 2018, the company's waste heat power generation increased by 52 million kWh; the company cooperated with the city's green power dispatching to guide the peak-shifting power consumption, optimize the power supply and distribution system operation to improve the power factor (controlled above 0.95). The company optimizes the operation of the air separation system. The control level of oxygen release is 0.21%, ranks the best in history.

Note: Three-stream one state: energy flow, value flow, information flow, and equipment status

#### Energy saving by technology adoption

Baosteel Co., Ltd. applies the industrial BAT technology in an all-round and whole-process manner to constantly reduce the energy consumption during steel production. In 2018, the company focused on promoting steam system optimization and self-generation rate improvement, and organized energy conservation technology exchanges such as energy storage, magnetic levitation air conditioning, permanent magnet speed regulation, and cooling tower fan energy conservation. Start the compilation of the four-base energy-saving low-carbon technology library. In 2018, 9 new energy-saving technological transformation projects were put into operation, and 13 new energy-saving technological transformation projects were established. In 2018, the company achieved 96400 tons of equivalent coals of technical energy-saving amount.

### Process

### Measures of application of energy-saving technologies and complementary energy recovery of key equipment



#### Iron-making procedure

- High-temperature and high-pressure dry quenching in coke oven and auxiliary power generation
- Coal moisture control technology for new coke oven
- Sensible heat recovery of raw gas of coke oven ★
- Sintering flue gas waste heat boiler
- Technology of waste gas ignition of sintering machine
- Technology of waste gas and hot air sintering of sintering machine
- Sintering sensible heat vertical furnace recovery ★
- ORC electricity generation by sintering waste heat ★
- Blast furnace dry dust removal and TRT power generation (#2/4 blast furnace)
- Dry granulation and sensible heat recovery of high-temperature melted slag ★
- Recovery of waste heat of flue gas of hot blast stove
- High-temperature melted iron heat dissipation, sensible heat of furnace body cooling water and sensible heat recovery of blast furnace gas ★



#### Steel-making procedure

- Steel-making evaporation cooling OG system
- Mechanical vacuum pumping technology
- Electric furnace flue gas waste heat boiler
- Low-heating-value gas regenerative baking
- RH energy storage expansion optimization
- Steel ladle capping
- Recovery of radiant heat of billet steel ★



#### Steel-rolling procedure

- High-efficiency combustion technology of furnace (regenerative combustion technology, etc.)
- Air-gas preheating technology
- Alternative energy for technological energy-saving ★
- Recovery of waste heat of low-temperature flue gas
- Evaporation cooling of heating furnace
- Oxygen-enriched combustion of heating furnace
- High-temperature flue gas waste heat-based band steel technology
- Black body radiation heat transfer enhancement technology for heating furnace (Being added into the list in 2017)
- Technology of recycling of disperse protective gas



#### Energy public & auxiliary facilities

- Inter-stage compression heat collection and utilization of air compressor ★
- Sensible heat recovery of smoke discharged from boiler
- Low-temperature waste heat-based seawater desalination technology used for strong brine treatment ★
- Recovery of waste heat for sludge drying ★
- Technology of accumulation of cold with ice in blast and oxygen production areas
- Such technologies as regional energy network ★
- Water supply by different quality and cascaded utilization of water system
- Recovery of rainwater in the district and reduction in water intake quantity (Zhanjiang Base)
- Overall application of large water pumps and fan variable frequency driving
- Energy-saving LED lighting system

Note: ★ standing for breakthrough technologies





### Application of heat transfer and energy saving technology in hot rolling furnace

In 2018, the company's hot-rolling furnace completed the enhanced radiation heat transfer energy-saving transformation. By installing black body components, the disordered and diffused heat rays in the furnace were directly directed to the heated workpiece, thereby greatly improving the heat rays in place. Rate and effectively improve the thermal efficiency of the furnace. By applying this technology, a single heating furnace is expected to achieve an energy saving of over 3,000 tons of standard coal per year.



### Energy saving by process optimization

Baosteel Co., Ltd. adopts the melting process energy-saving and energy substitution technologies to reduce the temperature reduction of hot iron and melted steel, optimize the rolling process, reduce the tapping temperature and time in the furnace, increase the proportion of grades of steel which can be transported under hot condition and hot charging to help explore the low-carbon process path.

### Exploration and practice of low-carbon process path

Starting from the steel production process, the company actively explores the whole process technology and energy conservation, and contributes to the construction of ecological civilization and the realization of low carbon development.



### Research on Interface Energy Efficiency Improvement Technology

In 2018, the company improved its energy efficiency focusing on interface energy efficiency improvement, and tried to make breakthrough in the clean production index of iron-steel interface temperature reduction. Through multi-sector joint research, the company conducted in-depth research and rapidly converted it to on-site implementation in the following sectors such as process thermal analysis, big data and temperature drop diagnosis, turnover rate, "one-to-one" ratio, thermal insulation new materials, radiant heat insulation mechanism of scrap steel. In 2018, the temperature drop of the Baoshan base was reduced by 5 °C, the ratio of hot metal to water was reduced by 0.46%, the standard coal was saved by 22,800 tons, and the CO2 emission was reduced by 57,000 tons. The company's four bases have carried out collaborative research around the interface energy efficiency improvement.



### Research on low carbon smelting technology

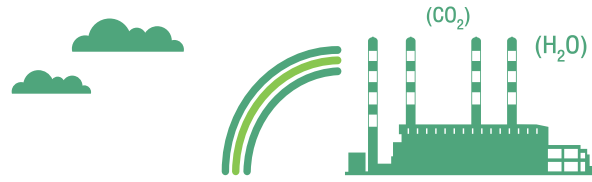
On the basis of dissecting EU ULCOS and Japan COURSE50, the company researched and exported the substitution technical proposal of blast furnace coal replacement by nitrogen and BOF argon gas replacement through increasing the high value utilization of blast furnace by gas calorific value improvement and carbon capture. It was named as Bao-CCU by World Steel Association.





### 5.2.3 Environmental Protection

Baosteel Co., Ltd. constantly strengthened the environmental protection process management via various engineering, management and technical means, to ensure the compliance of discharge of pollutants and continuous improvement of all the main environmental protection indicators.



#### Evolution trends of specific pollutants emission

Item	Unit	2014	2015	2016	2017	2018
SO <sub>2</sub>	%	100	80	79	83	96
DUST	%	100	83	72	65	59
NO <sub>x</sub>	%	100	89	89	73	59

Notes: 1) Data is proportional to that of 2014.

2) Data from 2018 begins to include four manufacturing bases of the company

3) According to the new version of the pollution permit requirements, the pollutant emission calculation method has been adjusted since 2018, resulting in a large change in the SO<sub>2</sub> emission fluctuation.

#### ☆ Responding to the national and local clean atmosphere action

The raw material yard of Baoshan Base, covering an area of nearly 1.9 million square meters, is the largest bulk raw material yard in Eastern China, with a total annual processing capacity of nearly 140 million tons. The total length of the belt conveyor system is more than 125 kilometers. As an active management project to reduce fugitive emissions, in 2018, the company completed the enclosure of five strips of ore stock.

The ultra-clean emission retrofitting of the company's own coal-fired generating unit at Baoshan Base was included in the Shanghai Clean Air Action Plan. At present, the engineering design and equipment procurement of the project have been completed. The 1#, 2#, and 3# unit transformation has been completed to ensure the full-time and whole process compliance for "5-35-50" (dust 5mg/Nm<sup>3</sup>, sulfur dioxide 35mg/Nm<sup>3</sup>, nitrogen oxide 50mg/Nm<sup>3</sup>) super-power emission standards for thermal power units.

Dongshan Base adheres to the highest starting point and highest standard of environmental protection during construction, and applies industry leading technologies including complete sealing of raw materials, full desulfurization and denitration of flue gas, and recycling of metallurgical dust.

Meishan Base responded to the call of Nanjing City to promote the closure of coal yards and the transformation of sintering and coke oven flue gas emissions.

The Qingshan base promotes the closure of the material yard and the emission modification of the whole process flue gas treatment.

#### ☆ Engineering application of industrial demonstration technology

At the end of 2018, Baoshan Base completed the overhaul and renovation of the sintering area, and the flue gas treatment adopts activated carbon adsorption technology to ensure that local environmental emission requirements are met.

Dongshan Base takes the lead in utilization of independent engineering integrated application of cutting-edge and demonstration technologies. Environmental protection technologies such as comprehensive treatment of flue gas from large coke oven, integrated flue gas

treatment of sintering, whole sealing of raw material system, metallurgical dust & sludge rotary hearth furnace, coking waste water wetland treatment are adopted, which represent the most advanced environmentally friendly factory technologies of the present steel industry. In 2018, Dongshan Base continued to promote the project of "zero solid waste getting out of factory", and 100% of iron-containing dust is being recycled to production and utilization till now.

The Meishan base promotes the treatment of coke oven flue gas using ozone activated carbon synergistic denitrification, which adopted activated carbon-based catalytic flue gas desulfurization + low temperature SCR denitration process, and the design of pollutant emission of 2A2B coke oven meets the national special emission limit standard.

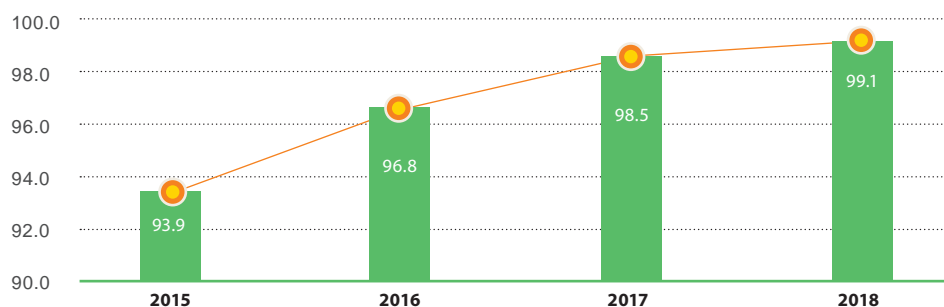
During the year, Qingshan Base promoted 48 environmental protection investment projects, and realized the enclosure of the sinter finished product yard, and strengthened the closed belt corridor by more than 9,000 meters. The total discharge of major pollutants of the company decreased year-by-year, and the dustfall in the plant area decreased by more than 10%.

#### ☆ Effectively improve process control level of factory and ensure the stability and high efficiency of environmental protection facilities.

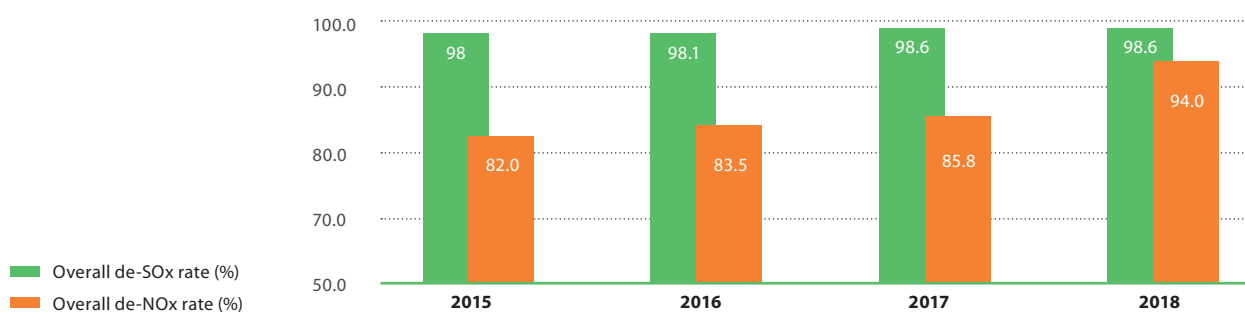
Baosteel Co., Ltd. constantly optimizes the production process and takes efficient pollution control means, and on the other hand, constantly improves the equipment operation and maintenance level, strengthens the process control level during production process, so as to ensure stable and efficient operation of environmental protection facilities. The Company prepared related environmental protection equipment management documents, and implement them in a strict manner. According to the characteristics and importance of various environmental protection facilities, control of various important environmental protection facilities (such as sintering desulfurization and denitrification plant, power plant desulfurization and denitrification plant, etc.) is strengthened, and their operation, maintenance and management are conducted with support of various professional teams, so as to constantly optimize the equipment operation status, and provide support for pollutant emission compliance and total emission reduction of the Company.



● Overall desulfuration rate of sintering (%)

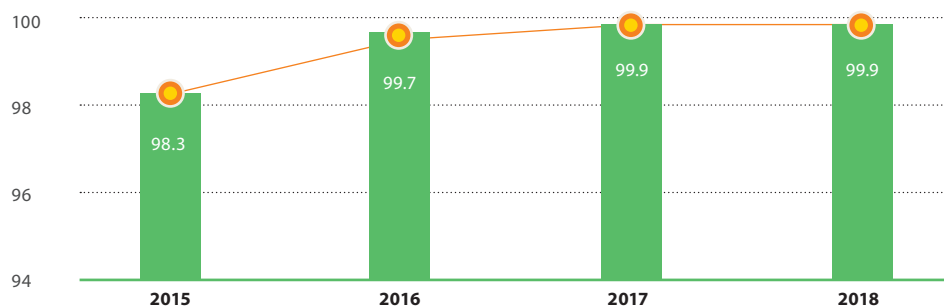


● Overall de-SO<sub>x</sub> and De-NO<sub>x</sub> rate of generating unit



The synchronous operation rate of company's major environmental protection facilities in recent years is as following:

● synchronous operation rate of company's major environmental protection facilities



☆ **Strengthening management system construction and constantly improving environmental risk management level**

In 1998, Baosteel Co., Ltd. became the first steel enterprise passing the ISO14001 environmental protection system certification in the steel industry of China. 2018 is the first year of the validity of the new version environmental management system. The company completed the review certification, implemented the concept of the whole life cycle and risk opportunities thinking, revised and improved the "environmental factor identification control procedures". Faced with the increasingly severe external environmental pressure, the company closely follows the requirements of environmental protection first, and signed "Responsibility Letters for Environmental Protection Targets" with all relative units. Besides, the company established the "river manager system", and promoted water pollution prevention and control, and strengthen the enforcement supervision mechanism.

☆ **Endeavoring to realize "zero waste" of solid wastes and by-product resources of metallurgical factory**

In recent years, the comprehensive utilization rate of solid wastes of Baosteel Co., Ltd. has kept higher than 99%, among which more than 25% solid wastes used for recycle. All granulated blast furnace slag is utilized in a comprehensive manner, of which more than 90% is utilized deeply as superfine slag powder. For steel slag, after metal extraction and being recycled, the remaining part is all used in cement, building materials, ships, etc. The iron-containing dust and sludge is recycled in blast furnace to the greatest extent. All pulverized fuel ash and gypsum are for comprehensive utilization in architectural industry.

The slag deep processing center of Baoshan Base has been put into full operation, with a processing capacity of 2.91 million tons/year. The center realizes fully enclosed production, which is the comprehensive processing factory with the largest deep processing of steel slag, the most complete environmental protection facilities and the highest processing standard. All the slag could be further sorted and processed to realize the 100% collection of metals. The slag residuals could be 100% returned back to production, leaving the tailing with iron content less than 1.5%. All the tailing will be 100% commercialized. 2 million tons of high quality construction material could be made every year.



### ☆ Comprehensively improving the monitoring level for industrial pollution source and regional ecological environment

The company promoted the upgrade of the active online monitoring system for flue gas. The following monitoring systems were added, for example the SO<sub>2</sub>, NOx monitoring for sintering, coke oven, the particulate matter, SO<sub>2</sub>, NOx and hydrogen chloride monitoring for solid waste incineration facilities. The company also established a comprehensive range of VOCs and noise monitoring networks. The company strengthened the self-monitoring of pollution sources as well as the disclosure of environmental information, carrying out full-factor monitoring of pollution source for waste water, and also the monitoring of dioxins, mercury, fluoride and blackness as a complement to the conventional pollutant monitoring of pollution source gases. The company steadily promoted the construction for the on-line environmental management platform. The company promoted the interconnection of the real-time EOP (Environmental Online Monitoring) environmental monitoring system and EMS (Energy Management System) system, forming an E2MS management system to achieve 7\*24 integrated monitoring system for hourly industrial safety and stability requirements. All the work helps to the transformation of the on-line environmental management monitoring from the end to the whole process.

## 5.3 Green Supply Chain

Baosteel Co., Ltd. implements environment-friendly management, and extends the environmental protection and sustainability concepts to all links of supply chains such as raw material supply and equipment procurement. Through formulating a series of procurement policies and advocating the concepts of resource saving, environmental friendliness and product life cycle value maximization, the Company delivers the concept of green operations to upstream/downstream enterprises, guides the suppliers to pursue civilized, healthy and clean production as well as coordinated development of economic benefits, environmental benefits and social benefits, and works with the suppliers together.

### 5.3.1 Management of Green Supply Chain

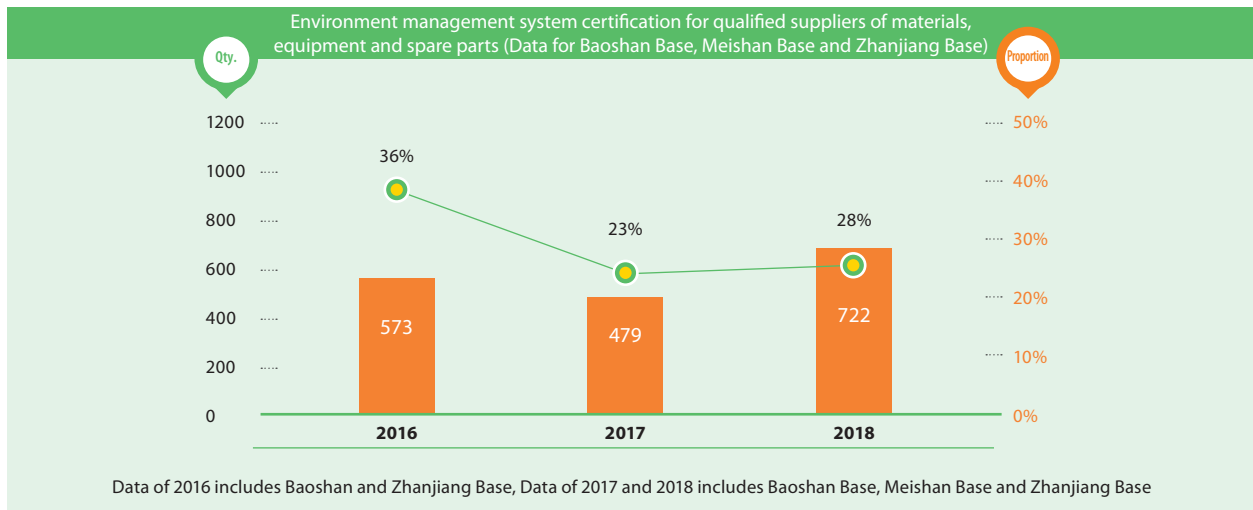
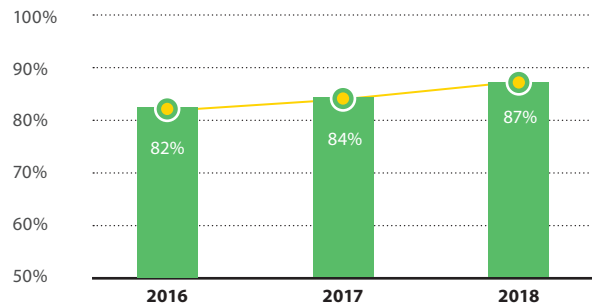
#### Green management of suppliers

The company establishes and implements supplier green audit standards, focusing on suppliers' sustainable development, safe and environmentally friendly occupational health management, green supply, and hazardous substance management. Through the establishment of supplier audit standards, the breadth and depth of supplier audits are enhanced, the audit is scientific and effective, the management level of suppliers is improved, and procurement costs and risks are reduced. Till the end of 2018, a total of hundreds of suppliers have been audited, effectively improving the system capabilities of key items and key suppliers.

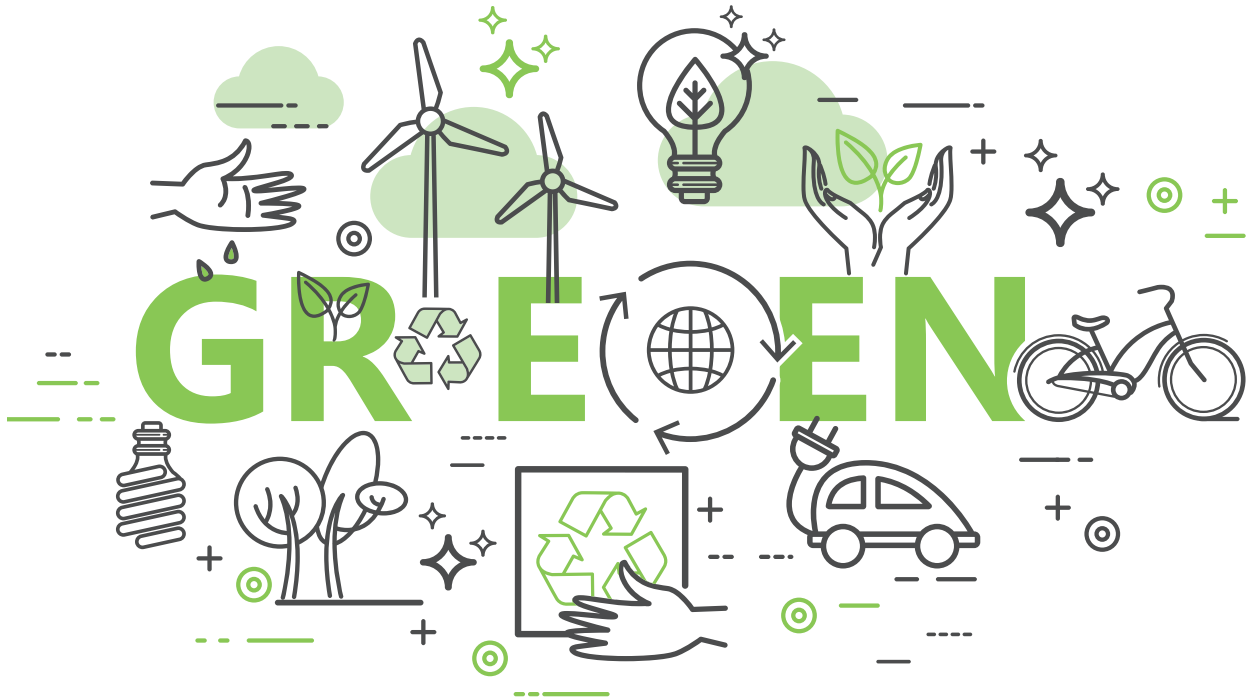
#### Sunshine procurement

Baosteel implements "sunshine procurement" strategy. Through signing honesty and integrity agreement, perfecting punishment means against adverse events, invitation for bids and procurement pursuant to law and promoting open purchasing, the Company and suppliers create an honest, fair, just and open supply chain environment jointly. In 2018, a total of 333 qualified suppliers were added to engineering equipment and materials and spare parts, all of which signed a clean agreement. In 2018, the ratio of competitive purchasing of materials, equipment and spare parts for the Baoshan Base and the Zhanjiang Base accounting for 87%. The Data for the recent 3 years is as follows:

Baoshan, Dongshan, and Meishan bases of Baosteel Co.,Ltd. Proportion of competitive procurement of materials and spare parts







## E-commerce development

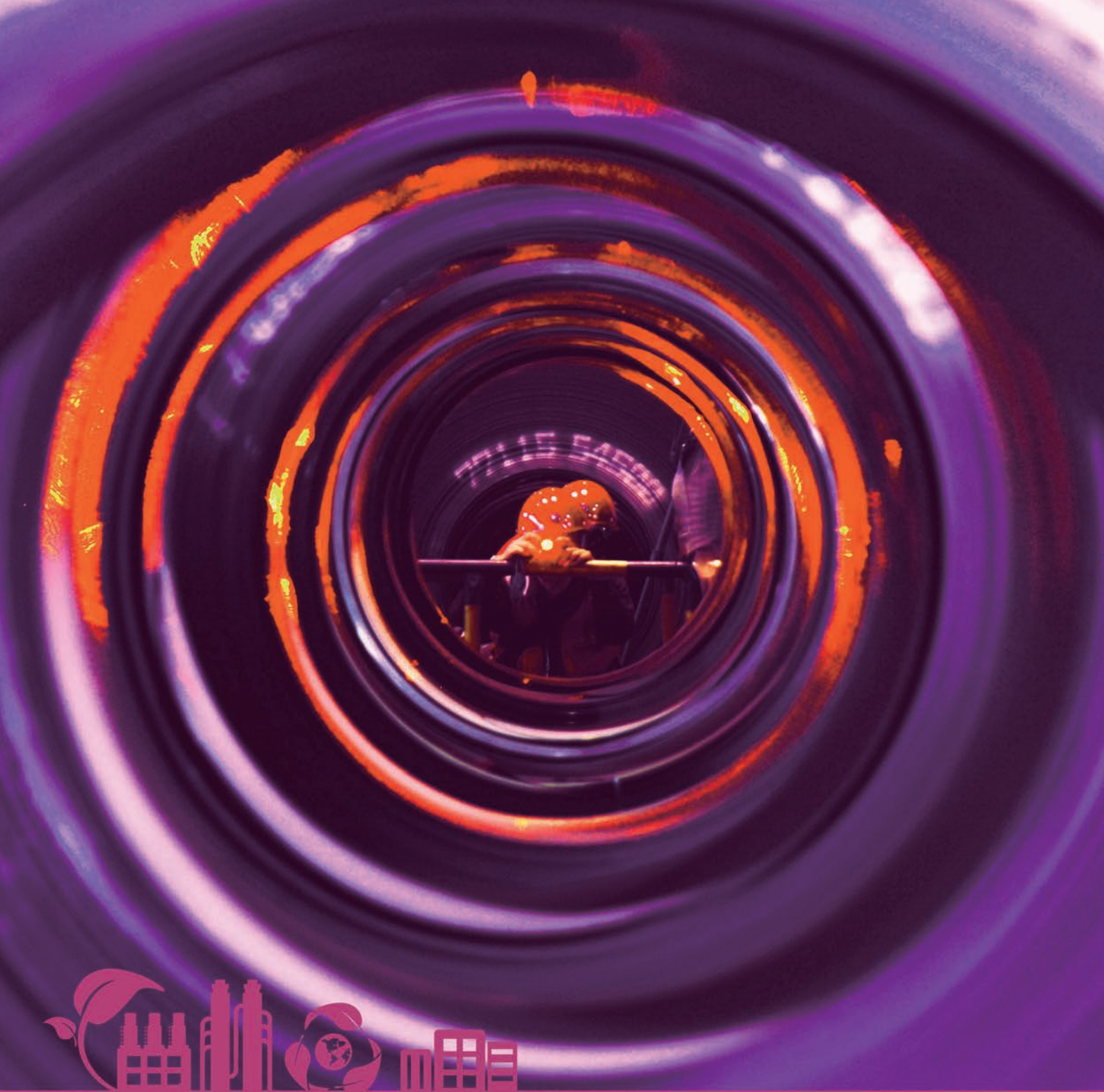
The company adapts to the characteristics of the Internet era, continuously develops e-commerce, enhances the level of information sharing, reduces resource consumption, and cooperates with the company's development strategy and transformation needs. In 2018, the company completed the full coverage of the four base procurement information systems, realized the basic information of the four-base article code, suppliers, and the main process of procurement and supply, and the procurement supply business operated in the same system. The "unified platform, unified language, and unified process" of the procurement information system laid the foundation for procurement information sharing and resource sharing. In the same year, the procurement information system continued to implement functional enhancements, and developed the procurement approval mobile application. Through the construction of the Ouyeel Mall-Baosteel area to connect with well-known e-commerce companies such as Jingdong, the procurement channel was expanded and the user experience was improved. The interconnection of internal and external resources has opened the door to the management transformation of traditional procurement to "Internet + procurement", and launched the engine of intelligent procurement construction.

In 2018, the company's Baoshan, Dongshan and Meishan three bases further improved the electronic cooperation level of suppliers and suppliers, and the electronic inquiry price, electronic contract, electronic order coordination, electronic label, electronic warranty book and other indicators reached a high level.

In 2018, the proportion of electronic label applications reached 66% of goods, the proportion of electronic contract shares rose to 97%, and the proportion of important key items electronic warranty books reached 72%.

## 5.3.2 Promotion of Partner Development

Baosteel is committed to "becoming the driver of green industrial chain and the best practitioner of environmental friendliness". For the partners in the supply chain, the Company selects some suppliers in better conditions for research and cooperation, evaluates their basic data about the environment based on the full life cycle theory (LCA), gradually establishes the LCA database for environmental performances of the products supplied by the suppliers, regards the LCA evaluation results as the important reference for access of products, and gives priority to the products with good environmental performance. By this way, Baosteel provides basis for the green purchasing of the Company on the one hand and guides relevant partners in improvement of their green development level.



# COMPETITIVE BAOSTEEL

PART 6



In 2018, the company seized the favorable opportunity of the market and focused on the “1+5” core competence of multi-base management, cost revolution, technology leadership, service first, smart manufacturing and urban steel mill. Baowu integration, deepening reform, cost reduction, manufacturing, product research and development, market expansion and other work have achieved remarkable results, business performance has reached the best level in the same period of history. Business quality has reached a new level, asset quality has been further consolidated, operation More healthy and efficient.



## 6.1 Main Actions

### 6.1.1 Research & Development of New Products and Technologies



#### Product cultivation and market expansion

The company adheres to the initial product cultivation and market expansion, further creates differentiated competitive advantages, adheres to the path of differentiated new product development, and continues to meet and guide the current and potential needs of the market with innovative products and services, leading the industry's technological progress and truly achieving core products. Leading competitors for more than one generation.

#### Team building and management

The company solidifies the value-creating team mechanism, expands the scope of the mechanism, and drives the rapid expansion of the new product market. Formulate management methods for the company's value-creating team, plan and implement four value-creating teams such as coated iron, composite board (Phase II), hot rolling heat treatment, and aluminum silicon, expand the scope of the value-creating team, and further explore the operating mechanism of the value-creating team. In-depth promotion of the "in benefit sharing, risk sharing" technology innovation incentive mechanism.



#### Baosteel's thin gauge oriented silicon steel achieves world premiere

The thin gauge oriented silicon steel B18P080 achieved world first, with an average iron loss of 0.77W/Kg, and successfully trialed the three-dimensional wound core transformer. The rapid curing self-bonding coating technology has successfully achieved the first-round trial production in the production line, and its fast curing demonstration experimental equipment has also been successfully applied. The product is being certified by the user, and plans to demonstrate the new coating product with the user. Promotion; New energy vehicle drive motor steel B25AHV1300M passed the certification of Toyota's fourth-generation motor materials, and its material performance is superior to Japanese and Korean competitors.



### 6.1.2 Platform of energy conservation and environmental protection BAT as well as demonstration of new technologies



In 2018, Baosteel implemented 162 environmental protection projects, which were focused on upgraded treatment of flue gas from sintering machine, coke oven, and power plant, upgrading and renovation of process dusting facilities and furnace facilities (replacing old facilities with new ones), upgrading and updating of environment monitoring facilities, fugitive emission.

In 2018, the company focused on promoting steam system optimization and self-generation rate improvement, and organized energy conservation technology exchanges such as energy storage, magnetic levitation air conditioning, permanent magnet speed regulation, and cooling tower fan energy conservation. In the year, 9 new energy-saving technological transformation projects were put into operation, and 13 new energy-saving technological transformation projects were established. In 2018, the technical energy saving amount was 96,400 tons of standard coal



#### Retrofitting for synchronous denitration with COA for sinter head flue gas in Meishan Base 4# sinter

Meishan base No. 4 sintering machine head flue gas collaborative denitration transformation project by ozone +carbon activated carbon (COA) was put into operation. On the basis of the current semi-dry desulfurization of circulating fluidized bed, the project only added the ozone generating device and supporting facilities and ozone spraying system, which simplified the process configuration and had good matching with the semi-dry desulfurization system. Desulfurization and denitrification are in the same reaction environment, and are completed at the same time, mutual promotion, which adapts well to the condition.



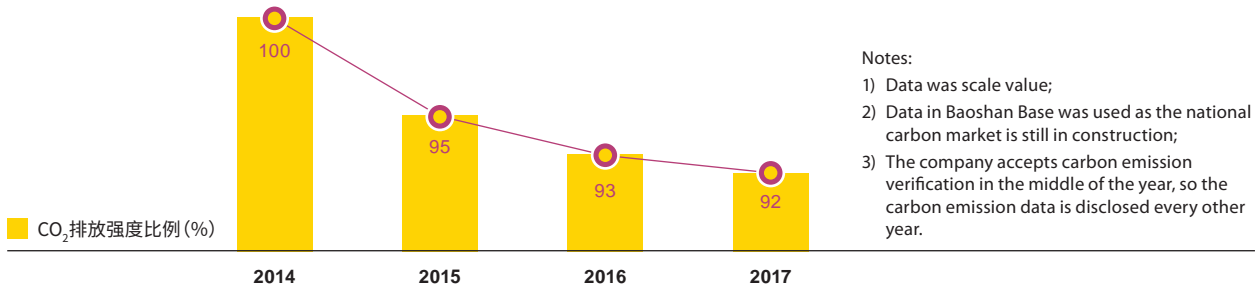


### 6.1.3 Carbon Management

In the carbon trading, the company still adheres to the principles of low-cost performance and non-profit-oriented stable carbon asset management. At the end of July 2018, the company successfully completed its 2017 carbon compliance, and purchased the CCER through the invitation price comparison and sold the part in the secondary market. The revenues have offset all CCER purchases, and achieved a profit of 3.4 million yuan.



Trends of CO<sub>2</sub> emission intensity (proportioned to 2014)



### 6.1.4 Strengthen Industry-University-Research Collaboration

In July 2018, the “Baoshan Iron and Steel Co., Ltd. - Shanghai Jiaotong University Future Steel Joint Research Center” set jointly by the company and Shanghai Jiaotong University established was formally established. Focusing on the future development trend of steel, the center will carry out comprehensive cooperation in forward-looking technological innovation, engineering problems, transformation of scientific and technological achievements, and training of high-end talents. In October 2018, the company signed a comprehensive cooperation framework agreement with Anhui University of Technology to strengthen exchanges and cooperation in scientific research, personnel training, and joint declaration of scientific and technological achievements.

The company actively integrates into the national innovation system, enhances the company’s technological innovation capability by utilizing relevant national and local government science and technology policies, and takes the lead in undertaking 6 national key research and development projects of the “13th Five-Year Plan” and participating in undertaking 30 projects. In response to the national strategy of “Volkswagen Entrepreneurship and Innovation”, the company built a “Public Research” platform to expand the source of technological innovation knowledge, and completed the construction of Baowu Public Research Platform with “Internet + Innovation”. On October 30, the public research platform was officially launched..





## 6.2 Enterprise Competitiveness

### 6.2.1 Enterprise Investment

#### Research & development investment

In 2018, the R&D investment rate was 2.3%, the sales volume of new products was 14.42%. The amount of new products was about 1.41 million tons. 22 high-tech achievements were accredited, and Baosteel applied for 1115 patents.

#### Investment in environmental protection

The environmental protection cost composition included expense cost and capital cost, which were respectively RMB 6.360 billion and RMB 2.283 billion, including all bases and subsidiaries.

### 6.2.2 Industry Lead

#### Patent conditions

In 2018, Baosteel applied for 1115 domestic patents, including 981 invention patents, accounting for 88%; 829 domestic patents were authorized, including 560 authorized invention patents; 33 international patents were applied for, 46 patents were authorized. The company has a continuous and advanced patent layout for the third generation of automotive sheet high-strength steel, low-noise-oriented silicon steel and other golden apples. In 2018, Golden Apple International patent application was 22, accounting for 66.7%..

#### Baosteel's patent innovation ability is affirmed

On August 8, 2018, the Metallurgical Industry Information Standards Institute released the research results of the "China Steel Enterprise Patent Innovation Index" on the innovation of China's steel enterprises. Baosteel's comprehensive score ranked No. One. The results show that the five steel companies of Baosteel, Wuhan Iron and Steel, Panzhihua Iron and Steel, Anshan Iron and Steel and Shougang have a comprehensive score of more than 80 points, which is the most patented innovation enterprise, of which Baosteel has a comprehensive score of 86.9635, ranking first.

### Awards



**One item in the 20th China Patent Excellence Award:** "Inventive Patent of a High Magnetic Sense Oriented Silicon Steel and Its Manufacturing Method" (Patent No. ZL201210315658.2)" (Excellence Award).

**12 metallurgical science and technology progress awards:** Among them, "Jaguar grade steel plate stable manufacturing technology and application demonstration for automobile lightweighting" won the special prize, "Development and application of ultra-thin cold-rolled high silicon silicon steel manufacturing technology and equipment" "Cold rolling machine flutter intelligent monitoring and vibration suppression speed technology and application", "activated carbon smoke multi-pollutant synergistic high-efficiency purification key technology and equipment research", "modern blast furnace best magnesium-aluminum ratio smelting technology development and application" "The 4th first prize, "Baosteel's air pollution characteristics and systematic research and application of comprehensive treatment technology" and other four second prizes and three third prizes.

**6 Shanghai Science and Technology Progress Awards:** Among them, "First-class award for the development and application of oriented silicon steel for large-scale high-efficiency and low-noise transformers", "Development of ultra-high-strength and high-toughness casing for three-super oil and gas wells" And other awards, "integrated induction hardening large forged steel support roller development and application", "high efficiency, energy saving, environmental protection, automated demonstration coke oven research and application", and other four third prize.

**12 scientific and technological progress awards of Hubei Province:** among them, the first prize of "the key technology and application of continuous deburring of continuous casting billet" and the "development and application of complete rolling technology for environmentally friendly hot rolled strip" Second prize and five third prizes.

**17 items of Guangdong Metallurgical Science and Technology Award:** Among them, "Special Award for "Development of Steel Products for Cold Rolling Automobiles of Zhanjiang Iron and Steel Co., Ltd.", "Research and Practice of Key Technologies for High-efficiency, Low-cost and High-combustion Stabilization Production of Large Blast Furnace", Zhanjiang Iron and Steel Pu cold ultra-wide specification automobile plate production and development research, "Baosteel Zhanjiang Iron and Steel Hot Rolling Automobile Steel Product Development" and other three first prizes, "Baosteel Zhanjiang Iron and Steel Hot Galvanizing Product Development" and other eight second prizes and 5 third prizes.

### High-tech achievement recognition

- ① A total of 10 high-tech achievements in Shanghai: including "high-strength automotive suspension spring steel", "high formability, low yield ratio hot-rolled dual-phase steel products", "55KG~60KG high-formity pickling car" High-strength steel products, etc.
- ② A total of 12 high-tech achievements in Guangdong Province: including "hot-rolled and cold-rolled steel sheets for automobiles", "steel plates for high-grade household appliances", "high-surface high-precision hot-rolled pickled steel sheets", "high-grade hot-dip galvanizing" Steel plate" and so on.
- ③ Baowu Group's 28 major technological innovation awards: including "Research and Application of Key Technologies for Special Marine Steels", "Research and Application of High-Speed Continuous Laser Scoring Technology for Oriented Silicon Steel" and "Study on Hot Stamping Technology for Steel Sheets" Award, "Baosteel's new generation of high gas seal special oil casing development", and other four second prizes and 21 third prizes



## R&D results and industry leading technology



### Vigorous promote technology cost reduction and increase the value of technology reduction

**Iron steel process:** carry out research on improving the productivity of sintered machine and sinter grade, reducing the use of high-priced pellets, steadily increasing the sintering output, and steadily improving the cost of molten iron; developing a double-slag process for converters with low-iron-to-slag ratio and double-slag and low-phosphorus steel converters. In 2018, the proportion of converter double slag method increased by 6.91% compared with 2017, and the direct economic benefit exceeded 10 million yuan.

**Rolling process:** By optimizing the heat treatment process and rationally carrying out the production organization, the annual output is greatly improved, and the thermal test dynamic adjustment process is established. The hot-rolling rate of the hot-rolled 2050 production line is over 40%, which is the best level in history. Continuously improve the functional precision management of cold rolling welder equipment, etc., the number of abnormally opened production lines of the retreat line decreased by 50% compared with the same period of 2017, and the ultra-high finished product rate of cold rolling increased to 84%. Reduce the cost of BG80-3Cr products and 110 steel grade anti-sulfur tubes for CNOOC and improve product competitiveness.

### Accelerate energy and environmental protection technology innovation and support the construction of urban steel mills.

Carry out industrial trials and applications of iron and steel interface temperature drop technology for torpedo tank insulation, expansion, and scrap steel, and reduce the water temperature drop of Baoshanji subway and the comprehensive molten iron ratio of smelting;

For the first time in China, the industrial test of blast furnace waste tire rubber powder blending and conveying injection test was carried out. The cumulative injection volume was nearly 300 tons. The coal blending and conveying were normal, and the blast furnace working conditions were normal;

The blast furnace slag preparation industrial glass-ceramic research has achieved phase results, and has successfully obtained ceramsite slag addition amount of more than 60%, excellent performance of glass-ceramic products, and in the coke transport trough, steel slag bucket machine sloping chute, etc. The wearable parts have been tested for 4 months;

Start the near-zero emission project of cold-rolled high-salt concentrated water, and use carbon-based material adsorption and electrolysis new technology to construct deep water desalination technology and pilot equipment for Baosteel cold-rolled wastewater to reduce emissions by more than 75%.

Complete the development of low-temperature SCR denitration catalyst for coke oven flue gas and SCR denitration field test of coke oven flue gas bypass. The measured denitration efficiency of flue gas temperature is 165~180°C, which is more than 82%.



## 6.2.3 Widely -influential products

The company adheres to the path of differentiated new product development, and continues to meet and guide the current and potential needs of the market with innovative products and services, leading the industry's technological progress, and truly achieving the core products leading competitors for more than one generation:

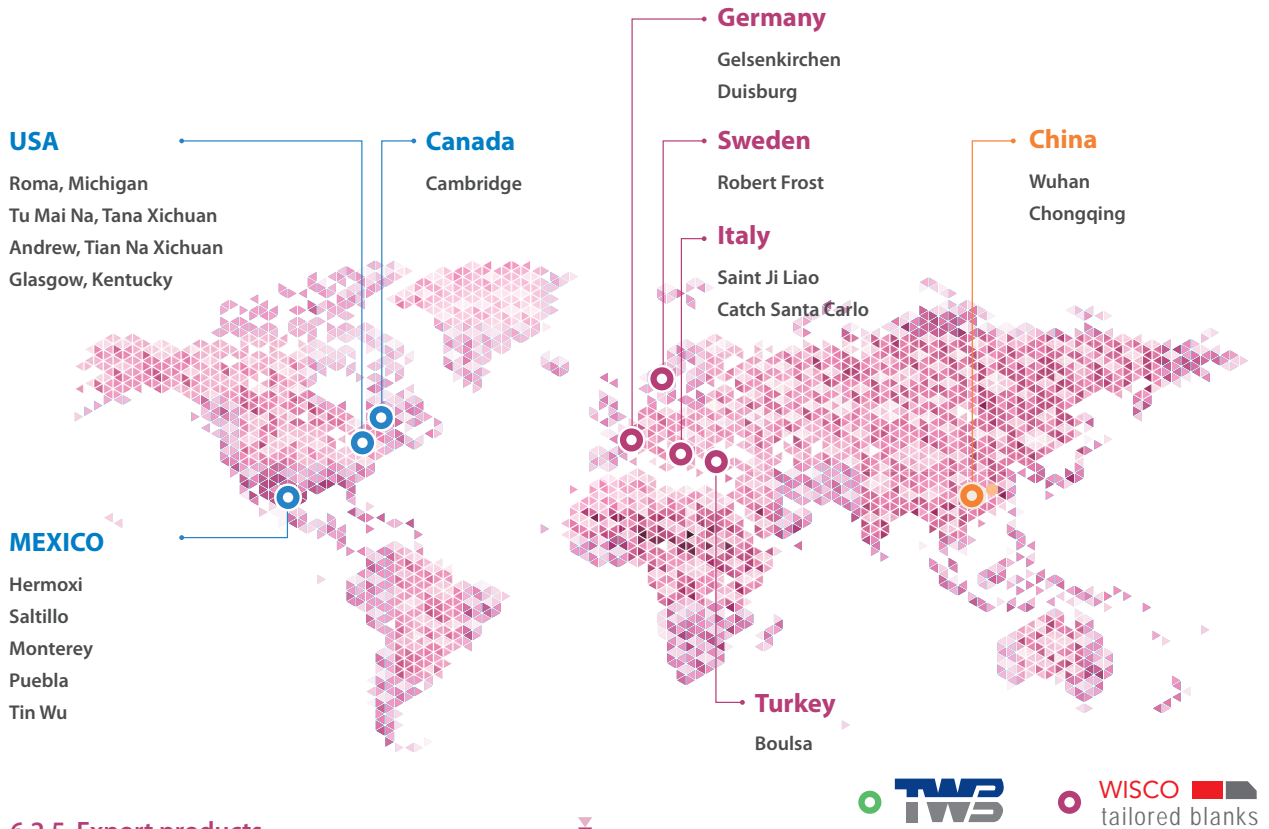
- a. The ultra-high-strength automobile panel QP1500 was verified in the pre-process of special steel and the Zhanjiang trial system was planned simultaneously. The prototype trial and internal evaluation were completed at the end of the year;
- b. The thin gauge orientation silicon steel B18P080 achieved world first, the average iron loss reached 0.77W/Kg, and the three-dimensional coil core transformer was successfully trial-produced;
- c. The coated iron realizes the deep-drawing DRD and shallow-shock DRD batch application, and completes the trial production of three foreign users' contracts;
- d. High-aluminum zinc-aluminum-magnesium is completed in the industrial trial production of Meisteel C208 unit and low-aluminum zinc-aluminum-magnesium in Zhanjiang Iron and Steel D108 unit, and the product quality meets the requirements of users;
- e. WISCO's limited high-strength and high-precision yoke steel SXRE750 has achieved world premiere and is used in major hydro-power projects in Wudongde, Baihetan and other countries;
- f. The ultra-large liquefied petroleum gas ship 460LF-TM breaks the monopoly of low-temperature steel by foreign steel mills, and realizes the complete localization of low-temperature ship plates;
- g. BG R950 non-tempered high-strength geological drilling pipe has achieved world premiere and has been successfully applied in geo-thermal drilling, marine geological drilling and other fields;
- h. 2050Mpa grade spring steel realizes mass production, and the fatigue life of steel wire is equivalent to that of Nippon Steel.

## 6.2.4 Global layout

Baosteel Co., Ltd. continuously improves the layout of overseas marketing outlets and processing services, and enhances its ability to operate internationally. By the end of 2018, Baosteel had established an overseas marketing network consisting of four regional headquarters and 20 branches, and had three steel processing centers and 16 laser welding factories overseas.



## The company's existing overseas supply chain system



### 6.2.5 Export products

In 2018, Baosteel Co., Ltd. exported about 3.97 million tons of steel products, accounting for about 8.2% of total products amount.

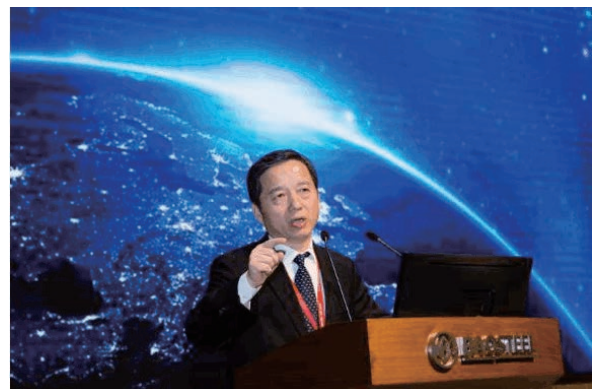
### 6.2.6 Domestic and foreign academic exchanges and cooperation

Academic exchanges and cooperation at home and abroad ment of the steel industry and the technical hotspots and problems. It focuses on the company's strategic planning objectives and closely tracks the dynamics of metallurgical conferences at home and abroad. The company uses the World Steel Association's expert resources and research results to serve Baosteel's management and technological advancement, globalization strategy and scientific and technological personnel growth; using the steel industry's global steel enterprise technology output and excellent practice sharing platform to demonstrate the image of China's steel industry. The company's "Using Plant Resources to Develop Renewable Energy" project was nominated for the Steeli Award for Sustainable Development Excellence. The company dispatched 18 groups throughout the year and 37 participants attended international academic conferences.



#### The 7th Baosteel Academic Conference(BAC) was successfully held

On October 30th, the 7th BAC Conference was held, and its theme is "Green Steel, Smart Manufacturing". More than 400 guests from 21 countries and regions around the world attended the conference, including some figures such as Chen Derong, Chairman of China Baowu Group, Gan Yong, Chairman of the China Institute of Metals, Academician of the Chinese Academy of Engineering, Director General of the World Iron and Steel Association, Edwin Basson, Nippon Steel Sumikin' deputy director and executive vice president, and Dave Stickler, general manager of the US Dahe Steel Company and so on. The theme of the annual conference is "Green Steel, Smart Manufacturing". The meeting keeps up with the development trend of the industry, focusing on hot and difficult issues, and collecting more than 500 papers from 21 countries and regions.





 Asian Steel Expert Seminar on Sustainable Technology Roadmap for global Steel Industry

In May 2018, the International Energy Agency (IEA) "Asian Steel Expert Seminar on Sustainable Technology Roadmap for global Steel Industry" was held in Shanghai. Experts and scholars from the World Steel Association, the Asian steel industry, government departments, research institutions, and universities gathered together to focus on the main situation of the industry, share useful practices in energy conservation, resource recycling and low-carbon fields, and explore the steel industry in various regions. The company's active practice in creating "urban steel mills" and building green industrial chains has left a deep impression on the global steel industry.



 Clean Air Workshop of World Steel Association

In November 2018, the Clean Air workshop of World Steel Association was successfully held at the company's Dongshan Base. The conference was hosted by the World Steel Association and Baosteel. The participants included senior and technical backbones from domestic and foreign steel companies such as Baosteel, POSCO, ArcelorMittal, ThyssenKrupp, China Steel and TENARIS. The meeting also specially invited experts from the Ministry of Ecology and Environment to make a keynote report on the evolution, development and future prospects of China's steel industry's atmospheric environmental protection policy.

The holding of this conference further enhanced the company's international image, actively promoted the company's practices and achievements in the treatment of atmospheric pollutants, enhanced the company's influence in the steel industry, and used the advantages of local meetings for the four bases to learn from domestic and foreign steel companies.





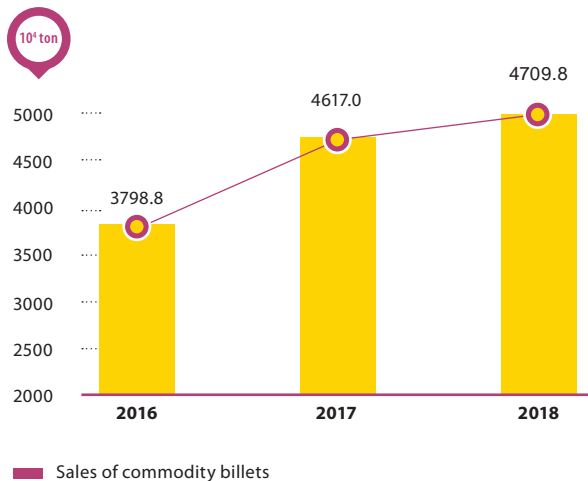
## 6.3 Economic Value Created and Distributed

### 6.3.1 Operating Revenue and Operating Costs

Since 201\_, the supply-side structural reform has been continued. The steel supply and demand pattern is further improved as a result of strong steel market demand, environmental supervision and other factors, the steel prices are running at a high level, and the price of imported iron ore is stable. In 2018, the domestic crude steel output was 928 million tons, with a year-on-year increase of 6.6%. The whole industry has achieved its best ever profit level.

Upstream, the China (domestic) steel comprehensive price index rose from an average of 107.61 in 2017, and rose to 115.92 at the end of 2018. At the same time, the average annual price of 62% iron ore Platts index decreased by 2.6% compared with last year. The average annual price of Shanxi Lvliang main coking coal increased by 15.5% compared with last year.

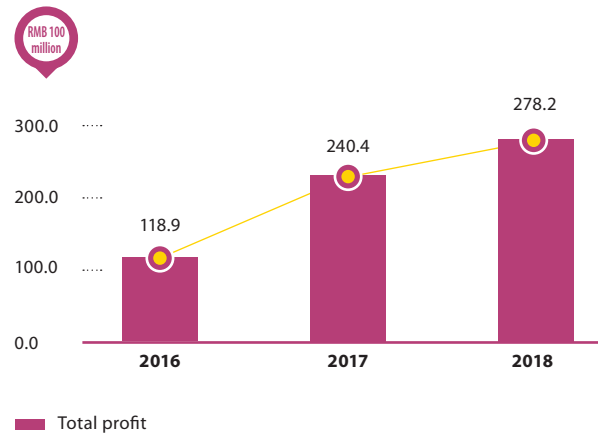
The company's sales of commodity billets in the past three years are as shown:



### 6.3.2 Profits

The company seized market opportunities and continued to promote internal efforts such as cost reduction, quality improvement and deepening reforms, explored and implemented multi-base management mode, and fully utilized the synergy effect of Baowu integration to achieve the most historical achievements in terms of operating performance and acquisition capacity. In 2018, the company realized a total profit of 27.82 billion yuan, increasing by 12.15 billion yuan compared to that of 2017, with a increasing amplitude of 15.7%.

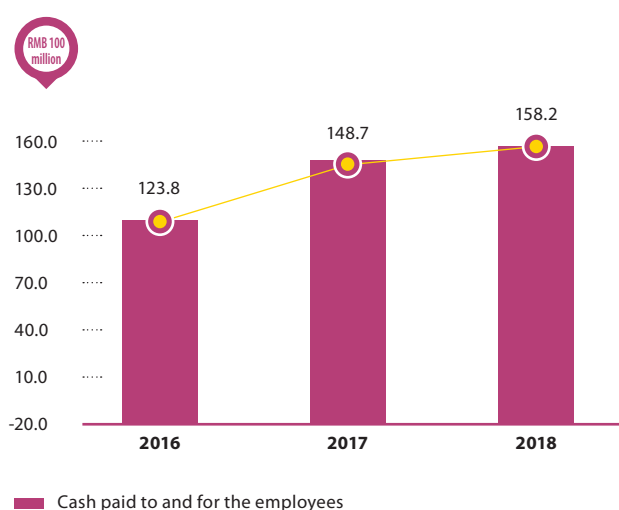
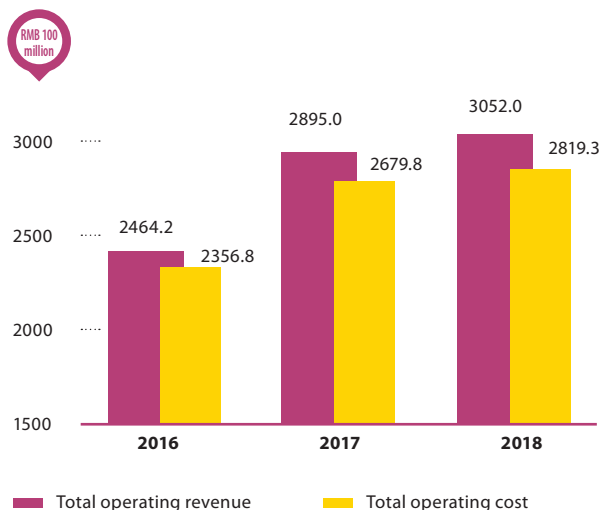
The company's total profit for the past three years is shown in the figure:



### 6.3.3 Employee Remuneration

Cash paid by the Company to and for the employees amounted to RMB 15.82 billion in 2018. The situation in the past three years is as shown in the figure below:

The company's revenue and total operating cost are as following:



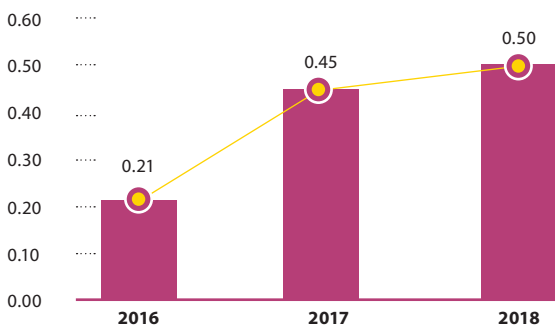


### 6.3.4 Retained Earnings and Dividend Distribution

The company's articles of association stipulate that the order of profit distribution after tax is: make up the loss, withdraw the statutory reserve fund, withdraw any reserve fund, and pay the common stock dividend. The statutory reserve fund is 10% of the company's after-tax profit. When the accumulated statutory reserve fund is more than 50% of the company's registered capital, the company can no longer withdraw. The company's board of directors determines the specific plan for withdrawing any provident fund and paying common stock dividends according to national laws, administrative regulations, company operating conditions and development needs, and implements them after approval to the shareholders' meeting. The company shall not distribute dividends until it makes up for the losses and withdraws the statutory reserve fund.

In 2018, the legal population achieved a net profit of 14.271 billion yuan. In order to achieve the company's long-term and sustainable development goals and better return investors, according to the company's articles of association, 10% of the net profit of the 2018 annual population path will be used to withdraw the statutory reserve fund of 1.427 billion yuan; 10% of the net profit will be realized according to the 2018 annual population path. Extracting any provident fund of 1.427 billion yuan; in view of the company's consistent emphasis on returning shareholders, adhering to the principle of long-term cash dividends, the company plans to distribute cash dividends of 0.50 yuan / share (including tax), based on the total share capital of 22,267,915,125 shares at the end of 2018, the estimated dividend of 11,133,957,562.50 yuan (including tax), accounting for 51.63% of the net profit attributable to shareholders of the parent company in the consolidated statement. The total amount of the actual dividend is calculated based on the share capital registered on the equity registration date confirmed in the dividend announcement.

RMB yuan/share



■ Cash dividend distribution

### 6.3.5 Fund provider

The company actively responded to changes in the financial environment, expanded direct financing channels, studied interest rate and exchange rate trends, and continued to implement debt structure optimization programs.

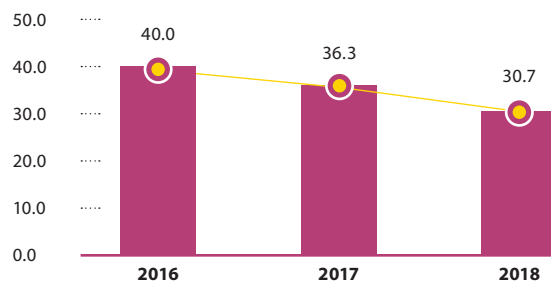
In 2018, under the environment of tightening liquidity, we insisted on lower interest rates for domestic RMB financing, guaranteed low-cost financing and demonstrated a good image of the financing market; seized the market and policy window, and rolled out 10 billion yuan of low-cost Short-term financing bills, smooth debt replacement, and effectively reduce financing costs. Flexible allocation of short-term idle capital operations, ensuring the convergence of funds before and after, and successfully completing large-value dividends, bond maturity repayment, and financing currency switching at a lower cost.

In terms of risk management, during the rapid depreciation of the RMB in the middle of the year, we responded promptly and interactively, and took decisive measures to ensure that there are plans, strategies, and tracking, and the exchange rate management costs are controlled within an affordable range. By implementing the long-term management and control mechanism for working capital, the company's working capital will be controlled at a reasonable level to avoid the risk of price fluctuations and the risk of capital occupation. Further explore and improve the commodity hedging system to enhance the price risk management capabilities.

The company selects cooperative financial institutions according to the comprehensive conditions of financial institutions' credit status, business strength and market credibility, and coordinates and cooperates with financial institutions. The company has always attached great importance to the development of bank-enterprise cooperation. At present, it has signed bank-enterprise cooperation agreements, overall credit agreements and lending and repayment agreements with major commercial banks to ensure financing channels and financing quotas.

In 2018, the combined interest expense was 3.07 billion yuan.

RMB 100 million



■ Cash dividend distribution

## 6.4 Investor Relations

### 6.4.1 Organizing on-site performance conference

In recent years, Baosteel Co., Ltd., in conjunction with the annual report and semi-annual report, has insisted on holding a field performance conference, which has created favorable conditions for investors to meet face-to-face with the company's chairman and general manager, and has been unanimously recognized by the capital market.

The company closely follows the hot spot of the capital market and carefully selects the topic. In the past two years, it has formulated the company strategy, cost reduction, automobile board, silicon steel and other topics. The company's chairman, general manager or technical expert personally interpreted it and was greatly welcomed. The conference materials production, venue selection, venue layout, conference order maintenance and many other details, the company strives to ensure the high quality of the conference, bringing the best experience to the participants.

The company's performance conference has become increasingly influential in the industry. At the 2017 annual results conference, the number of participating organizations exceeded 100, and the number reached 140. At the same time, it attracted some media, peers and downstream users to visit. The scale reached the highest in recent years, and the performance conference has gradually become the face of the company. The brand of the capital market.



### 6.4.2 Promote communication with state-owned shareholders and international investors

Since the beginning of this year, the company's board secretary has led the team to actively visit state-owned shareholders such as Chengtong, Guoxin, and PetroChina, and conducted in-depth exchanges on corporate governance, Baowu integration, environmental protection supervision, and industry restructuring. They have been warmly welcomed by state-owned shareholders and confirmed. The willingness to exchange and exchange visits on a regular basis.

At the same time, with the increasing opening of the A-share market, more and more international capital has entered the A-share market. In recent years, the company has continued to increase coverage of international investors. This year, the company cooperated with famous international investment banks such as Citigroup, HSBC and JP Morgan Chase to organize three overseas non-trading roadshows and participated in two overseas investor conferences. In addition, the company has also customized the "Information Express" for overseas investors, and regularly reports the English version of the financial data form to provide more timely and caring services for overseas investors.

Since this year, international capital has continued to increase its shareholding in the company. By the end of 2018, the shareholding of international investors among the top 100 shareholders increased by about 30% year-on-year.

### 6.4.3 Strengthen communication with investors

Thanks to the supply-side reform of the country, the steel industry has achieved record high profits in the past two years, and the steel sector has received extensive attention from the capital market. As the industry leader, Baosteel Co., Ltd. has attracted a large number of investors from home and abroad to come to the research group, and also received many invitations from domestic and foreign investment banking strategy meetings. The company has always been adhering to the principle of serving investors well, trying to meet the needs of investors. In 2018, the company's investor relations team received 74 batches of investors, 504 people; held 33 conference calls; participated in JP Morgan Chase, UBS, Shen Wan, Everbright, and other well-known domestic and foreign securities companies' strategic exchanges will be held 30 times to maintain high-frequency interaction with investors.

In addition, the company in the "Shangzheng e-interaction", "panoramic. Roadshow world" and other online platforms, for the small and medium-sized investors written questions, adhere to the timeliness of the problem response, giving the most serious and timely written response, highly praised.

The company's investor relations work has won recognition from all walks of life: 1) won the "Best Investor Relations" in the "Institutional Investor"; 2) Shortlisted for the Best Investor Relations Award from the world's leading magazine IR Magazine.

Rating Agency	2016	2017	2018
Standard & Poor's	BBB+ STABLE	BBB+ STABLE	A- STABLE
Moody's	A3 STABLE	Baa1 STABLE	A3 STABLE
Fitch	A- STABLE	A STABLE	A STABLE





# RESPONSIBLE BAOSTEEL

The Company is a people-oriented enterprise which pays attention to demands and voice of all stakeholders.



## 7.1 Staff as Treasure

### 7.1.1 Staff as Treasure

There were 56158 in-service employees at the end of the report period. Employees are mainly distributed in Shanghai, Jiangsu Province, Guangdong Province, Shandong Province, Hubei Province and some overseas areas.

The Company provides equal employment opportunities for employees of different sexes and ages. Male/female ratio is 6.9: 1 due to the characteristics of the steel industry. Female employees are mainly on the management and technician and business posts.

The company has a group of high-quality professional teams, among which, 36% of the staff are technical and management personnel. And 50% of technicians are with intermediate and above titles. The company is mainly staffed by highly educated personnel, of which 41% are bachelor degree or above.

The Company has a young staff team which is full of vitality and has reasonable age structure: 45 years old or below, accounting for 67% of the total.

### 7.1.2 Safety and health

#### Employee safety

The company attaches great importance to the safety of its employees and continuously improves the safety management. In 2018, the company strictly followed the requirements of "the party and government have the same responsibility, one post and two responsibilities, and the responsibility for dereliction of duty". The managers at all levels performed their duties, insisted on systematic planning, promoted the reform and development of the safe production field, and took people's unsafe behavior and The unsafe state of the object is the main line, and the safety capability of "management, front-line staff, and collaborative system" is continuously improved, and the system support capability is improved. Adhere to the problem-oriented, promote safety management on the poor search, integration and integration, comprehensive management, wisdom improvement, and continuously improve the level of essential security prevention and control, and better promote the company's on-site essential security control and overall management level.

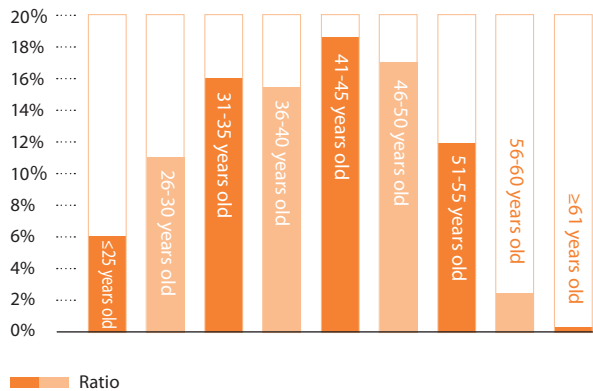
In 2018, the company's injury frequency (in millions of working hours) was 0.05, and the injury severity rate (in millions of working hours lost working days) was 85. The company's safety situation was generally stable throughout the year.

#### Workers' heatstroke prevention and cooling work

In the past three years, the company has continuously implemented the heatstroke prevention and cooling work. In addition to the administrative heatstroke prevention and cooling costs, the company's funds for heatstroke prevention and cooling have increased year by year, and it is used for the procurement of cold drinks, salt water and other heatstroke prevention products for employees, and for each employee every year. (including more than 60,000 people from Shanghai Foreign Subsidiaries) issued towel, soap and other heatstroke prevention products

Baosteel Co., Ltd. is dedicated to becoming a model of seek joint development of both employees and the company, provides competitive welfare and remuneration for its employees, gives a full play to the strengths of the employees, and provides sufficient vocational skill training and broad career development space for its employees.

Distribution of the age of staff



#### Physical and mental health

To meet the demand of employees for physical and mental health, the Company continuously enriches and optimizes the health security plan for employees and provides diversified health security service programs for the employees to select according to their personalized demands. Meanwhile, employees are entitled to the rest day, holidays and festivals, paid annual leave, family leave and other holidays as provided by the national laws and regulations and company system. Salary for working overtime and work on various holidays are paid in strict accordance with regulations of the national policies and company system.



Company leaders condolences to employees during the hot season





### 7.1.3 Harmonious Labor Relations

The Company abides by such laws and regulations as the Labor Law of the People's Republic of China, Labor Contract Law of the RPC, Trade Union Law of the PRC and Social Insurance Law of the PRC as a model, respects the human rights of employees, cares for employees, protects interests of employees in a practical way and enters into and performs labor contract with employees in accordance with law.

The Company meticulously implements the comprehensive contract system for all employees, collective contract system, system of congress of workers and staff; gives a full play to and strengthens the advantage of the workers congress system as a "platform" through establishing and strengthening the labor union organization, labor dispute mediation organization, labor law supervision organization, and supervision and inspection organization for labor protection; promotes the work of consultation on an equal footing and collective contract work in depth and extensively, which ensures the stability of the staff members and

promotes construction of a harmonious enterprise. In 2018, the company organized a five-person employee representative conference to implement democratic management of employees, standardize the implementation of relevant procedures, and ensure that matters involving the vital interests of employees were effectively resolved.

### 7.1.4 Welfare and Remuneration

#### Provide competitive salary treatment

The Company adopts a remuneration system that is competitive externally and fair internally. By tracking the market salary level, the company conducts salary analysis of internal units, reasonably determines the compensation strategy, and links employee compensation with the company's operating performance and individual performance. By vigorously promoting the efficiency improvement and cost reduction of all employees, the company continuously improves its performance and achieves employee income growth. At the same time, the company builds a sustainable medium- and long-term incentive mechanism, binds core employees with company interests to form a community of destiny, and promotes the common development of employees and enterprises.

#### Implement performance-oriented compensation incentives

The company adheres to the "efficiency and efficiency orientation" and implements the "employee's total wages" policy, so that the employees can share the dividends of labor efficiency improvement. The company further strengthens the salary according to the principle of linking salary with performance, guiding all units to do the annual salary distribution work, dynamically adjust the bonus delivery rhythm to enhance employee perception. The company focus on key, outstanding performance, accurate and timely implementation of key work and outstanding performance rewards.

#### Build a relatively complete welfare insurance system

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 welfare, the company fulfills its responsibilities and obligations in accordance with the law, and pays all social insurances in full and on time, including basic pension insurance, medical insurance, unemployment insurance, work injury insurance, maternity insurance and housing provident fund. In terms of corporate welfare, the company provided enterprise annuity plans, supplementary housing provident fund, health protection plan, health checkup and free working lunch as well as purchasing commercial accident insurance for employees. At the same time, in order to alleviate the housing pressure of young workers, according to relevant policies and regulations, The company provides monetization rental subsidies and purchases of first-home payment concession loan plans for employees who meet the application requirements, so that employees can "settle and work".

### 7.1.5 Care for Employees

#### Employee relationship

Baosteel establishes rules and regulations and advocates mutual assistance to ensure that the work of helping household in hardship is carried out steadily. The Company ensures emotional stability of the employees in difficulty through further improvement of the Management Measures of Helping Families in Financial Difficulties and Visiting Underprivileged Homes and adjusting the standard of helping families in financial difficulties; allocates 15% of employee donation that year to the grassroots trade union to intensify the help with employees in difficulties through formulating the Management Measures for Using of Daily Donation; intensifies employee assurance by arranging the employees to apply for the journeymen fraternity insurance in Shanghai.

#### Employees participate in life logistics supervision and improvement

In June 2018, the company organized employee representatives to inspect and inspect the canteen catering supply base and the workers' summer heatstroke prevention supplies. The site listened to and solicited the opinions and suggestions of the employee representatives, and effectively utilized the employee representatives in the company's life logistics. Management oversight and participation.

#### Balance between life and work

To create an excellent working environment, the Company performs important renovation project construction by layer and by category by following the principle of "being compulsory, feasible and reasonable" according to the practical situation of each department. It creates excellent working environment for the employees through various effective and practical measures to help the employees to keep balance between life and work.

#### Employee literary works into the group activities

In order to vigorously promote and inherit the spirit of "model love, dedication, hard work, dedication, fame and fortune, dedication" and the spirit of craftsmanship, "worker, craftsmanship, productism, innovation", create employees Dedication and excellence in the post. On the eve of the "5.1" in 2018, the company held a series of activities on the theme of "Promoting and Inheriting the Spirit of the Workers and Craftsmen", and collecting 185 pieces of works such as paintings and calligraphy, and conducting a tour of Baosteel Staff Art Festival

In May 2017, the company planned and launched the "Aibo Steel, Love Art, Love Life" staff calligraphy and painting photography exhibition, using staff's works to beautify the public places such as staff lounges, offices, etc., to enhance employees' sense of pride and belonging.





## 7.1.6 Employee Development

The company continues to promote the development of stratified and classified talents, continuously improving the training system for the growth of employees, and accelerate the growth of core talents with quality training programs.

### Staff training

In 2018, focusing on the company's development strategy and production management, it focused on the contents of "Baowu integration, deepening reform, and core competence", continuously optimized project design, improved the growth traction mechanism, expanded quality training resources, and tapped the potential and precision development of talent training. The per-capita training of employees was 97.8 hours, and the number of participants was 147,000. The average number of years of education for employees increased year by year. At the end of the reporting period, the average number of years of education for employees reached 16.25 years.

### Pay attention to platform construction, exchange and sharing, and promote multi-base collaborative development

In order to further exert synergy, the system plans to cover multi-base training and rotation projects. The company established a four-base long-term training seminar, chief training seminar, and technician association to promote the exchange of technical skills between the four bases. In order to further adapt to the company's multi-base management model, and continue to increase the company's internal excellent practice experience summary, the company focuses on the general field and core capabilities, in accordance with the "cultural identity, professionalism, willing to share, excellent teaching" and other criteria. We have selected 390 internal training teachers, including 269 internal trainers, 100 senior internal trainers, and 21 senior internal trainers. They have established matching ability enhancement, evaluation and incentive mechanisms, effectively stimulating the vitality of the internal trainers. At the same time, the company vigorously promotes the interaction and exchange of personnel between the multi-bases, and implement 722 person-times of rotation training throughout the year.

### Conduct three team capacity improvement training

Focusing on the improvement of the ability and quality of the three teams, the company has carried out in-depth and stratified classification to carry out talent training accurately, and achieved good results in three aspects: leadership, technical strength and on-site strength.

In terms of "leadership" promotion, the "Strategic Management Seminars of Baosteel Co., Ltd." was held, and more than 180 direct management cadres participated. In "Baosteel Action Learning Coach Certification Project", 27 managers of multi-service modules from multi-base obtained certification; combined with reform tasks and annual work, we carried out "operator training", "management wisdom manufacturing theme overseas short-term training", "concentration consistent" topic practical training. The company actively selected personnel to participate in the company's deputy general manager training class, senior manager training class, new manager training class and China Dalian Senior Manager College training program, more than 200 managers participated.

In terms of the promotion of "technical strength": The company focused on the training of leading-type skilled personnel, the quality and technical problems that need to be solved or focused on, 8 "Golden Apple Team" training, 10 TOP10 theme training, and 5 "Close to Master's special lectures", 3 sessions of the chief teacher's special training were held; for the cultivation of compound technical talents, focusing on the company's strategic products, through the "front-end design", "team formation", "internal redundancy" and other measures to enhance the team's ability to solve problems collaboratively, the company cultivated a team of all-process engineers; continue to carry out "Youth Entrepreneurship Action" for the training of young technical talents.

In terms of the promotion of "site power": The company focused on the inheritance and promotion of craftsmanship, planning and



### Diversification

Baosteel practices the management concept of equal opportunity for all, by following the principle of fairness and equity in the process of formulating various policies and plans, and advocating the concept that all people are equal. Discrimination against sex, age, nationality, religious belief and political positions is strictly prohibited during recruitment, promotion and appraisal. The system of equal pay for equal work is implemented for male and female employees. The Company encourages graduates who have returned from abroad to work in Baosteel Co., Ltd., tracks information of the people studying abroad and vigorously introduces high-level overseas talented professionals.

The Company lays great importance to employees of ethnic minorities and gives certain allowance to some ethnic minority employees. Some ethnic minority employees hold important management positions in the Company.

Meanwhile, the Company pays attention to taking care of special groups, such as concerning about the physical and mental health of women employees, implementing the maternity leave and breastfeeding leave; and implementing the policy of giving financial difficulties allowance to the poor.

### Employees getting involved in corporate governance

The Company lays great emphasis on the democratic management, implements democratic management work through workers congress and plant condition briefing and makes proposals involving the immediate interests of employees. Democratic procedures are performed to ensure the participation right and right of the employees to know the truth. During enforcement of various proposals, the Company organizes multiple staff representative symposiums, take opinions repeatedly and ask relevant department to modify and improve the scheme to ensure that relevant policies that have been issued by the Company are acknowledged and accepted by vast staff members. In 2018, The company held the fifth session of the workers' congress, implemented the democratic management of employees, standardized the implementation of relevant procedures, and ensured that matters involving the vital interests of employees were effectively resolved.





launching the “Golden Blue Collar”, “Silver Blue Collar” seminar and “Future Artisan Training Camp”, more than 130 people participated; continue to deepen the cooperation between enterprises and schools “Cultivating mode”, taking the first batch of “dual system” graduates from Anhui University of Technology as a pilot, launching the pilot program of “new apprenticeship system”, training talents accurately and quickly; continuing to deepen the “dual system” training mode of enterprise-school cooperation, Expand Shanghai Electric Machinery College as a partner institution.

### International talent training

The company combines the company’s overseas business development plan, builds an international talent team, steadily promotes the deep blue plan, and selects 29 outstanding managers and technical business backbones to go overseas for training, internships and study. Fully relying on the cooperation platform of “Baoao R&D Center”, focusing on “Technology Innovation System Construction” and “Technology Innovation Capability Construction”, 10 scientific research managers and technicians were sent, respectively, to Australia to participate in training and research projects. The helps to provide intellectual support for the company’s strategy for building The world-class technology R&D system and R&D capabilities.



Concentrated and consistent practical training for special topics



Team building for Internal trainers

## 7.2 Neighborhood as Treasure

In recent years, the company has been exploring a new model for synchronous development between steel plant and the community, and has achieved significant effect by applying a variety of measures, and the relationship with the surrounding society has become increasingly harmonious.

Each year, the company carries out special donations to neighboring communities, bringing the welfare of Baosteel to the surrounding residents, and has been unanimously recognized by the government departments and the surrounding residents. By strengthening communication, residents can understand the development of the company in real time, further eliminate the environmental concerns of residents, and shows the attitude and responsibility of the company. The company further strengthen interaction with local government departments, establish mutual benefit and mutual support, and jointly build a new win-win cooperation that seeks common development.

The company also insists on cooperating with the community to build a platform for interaction, and regularly communicates with Yuepu Ercun and Shenxiang District. The company regularly organizes the surrounding to participate in the “Factory Open Day”. During the World Environment Day, representatives of the people’s congresses in the district, representatives of surrounding residents, representatives of ethnic minorities and youth representatives participated in activities such as planting trees, green tours and walking in the factory, and felt and shared the development derived from Baosteel’s production, environmental protection and ecology. In 2018, the company invited surrounding residents to participate in the 6.5 “Green Baosteel” sustainable development documentary filming, residents have a sense of participation and a sense of acquisition.

In 2018, on the basis of the agreement between the company and Yuepu Town for 2018-2020, the party committee of Yuepu Town and the party committee of Baosteel jointly promoted the coordinated construction of community-enterprise organizations, which covers Baosteel Group’s 14 secondary party committees, and 31 community party branches under the jurisdiction of Yuepu Town, and formed 15 grids, aiming to further strengthen the tie between the Yuepu Town and Baosteel.

### Community-enterprise pairing trip for training and red tourism

In August 2018, the company organized a pairing trip to Changshu to carry out a two-day “melting ice” special training and “a red journey” activities, and achieved good results. After the event, each pair of units carried out various activities such as the renovation of the corridor environment, the condolence of the old men in the Mid-Autumn Festival, and the green tour of the plant area according to their respective needs, and promoted further harmony between the community and the enterprise.

### Dongshan Base promotes the integration of social enterprises and builds beautiful islands

Zhanjiang Steel adheres to the social responsibility and the concept of “green steel mill” and vigorously promotes social enterprise harmony and information disclosure. In 2018, it organized 48 activities of “walking close to Zhangang” and received 2,455 person/times from Zhanjiang Daily, Guangdong Ocean University, Zhanjiang City Youth League Committee, Dongjian Middle School and other related organizations. During the Arbor Day, Earth Day and Environment Day, the base organized employees and cooperative units to organize nearly 300 people to plant more than 1,300 trees to help build a “garden-style” factory.







## 7.3 Stakeholders as Treasure

### 7.3.1 Adhere to a high proportion of dividend policy

A high proportion of cash dividends has always been an important measure for the company to return investors, and it is also a powerful manifestation of the company's investment value. The company's current dividend distribution policy was reviewed and approved by the 2012 Annual General Meeting of Shareholders. It is clear in the company's articles of association: "The cash dividends distributed shall not be less than 50% of the net profit attributable to the parent company in the audited consolidated statement for the current year". In the winter of the steel industry in 2015, the company used the annual net profit for cash dividends.

As of 2017, the company has implemented a dividend distribution plan for cash dividends for 18 consecutive years, with a cumulative dividend of 74.2 billion yuan (including cash repurchase), ranking 16th among more than 3,000 A-share listed companies, and the cumulative average dividend distribution ratio is 50.5%. The total amount of dividends distributed to social shareholders has exceeded the amount of financing to them.

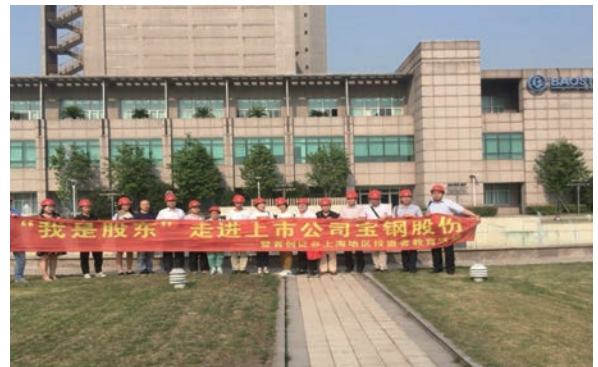
### 7.3.2 Diversification of channels of communication with shareholders

In order to provide better services to investors, the company is constantly trying new ways to continuously enrich the channels of communication with investors. The regular methods includes the IR mailbox, investor relations hotline and online interactive platform. And the company has always maintained a timely response, as far as possible within the scope of the disclosure rules. The company has also invested a lot of efforts in the maintenance of the official website. The company's announcements, financial reports, and actual records are all online in a timely manner, which greatly enhances the convenience of shareholders to access company information.

WeChat public account "Baogang's Board of Directors" is also an important position for investor relations work. In addition to sending

company news, data, prices, etc., it also interacts with other public accounts such as Baosteel Express Train and Baosteel Hello, to increase the publicity effect. In 2018, the "Baogang's Board of Directors" issued a total of 90 WeChat articles, which is a significant increase from 2017, and the number of followers exceeded 4,600.

In addition, the company has also maintained good interaction with small and medium-sized investors. In addition to the shareholders' meeting, there are also retail groups to the company for research and reception. The company's IR team gave detailed answers to the concerns of small and medium investors, and organized a research group to visit the factory and arrange on-site engineers to accompany them. It was highly praised by the visitors.





# URBAN STEEL MILL

PART 8



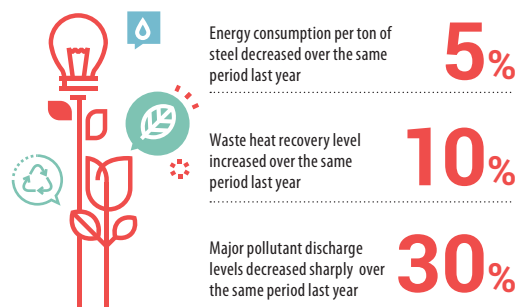
Baosteel insists in environmental management, and continuously promotes the construction of urban steel mill. Facing the rising cost and operational risks brought by continuous environmental high pressure and energy control, Baosteel continues to promote the construction of energy and environmental protection projects, and is committed to innovating low-carbon process technologies, improving utilization of carbon and energy streams, and further optimizing the energy consumption structure.



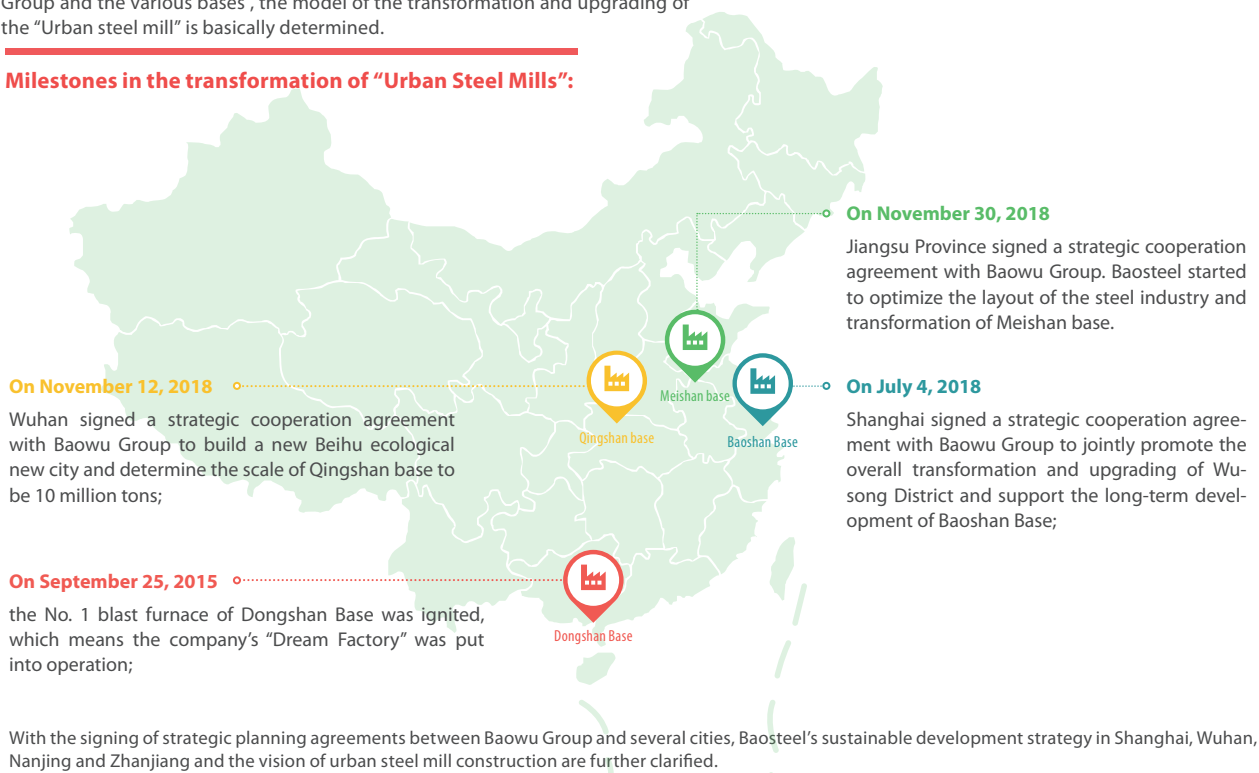
Baosteel's four major steel bases are all located in the rapidly growing core urban areas. The company deeply understands the concept of innovation, coordination, green, openness and sharing. Based on the current resource and environment status and planning and development requirements of the city, the company strives to continuously improve the level of green manufacturing and the regional environmental quality. Using the great functions of steel enterprises, which is energy conversion and resource recycling, as an important starting point, the company actively shares technology and resources with the city, and assisting the development of urban industry. The company also actively undertakes social responsibility, invests in urban charity and community construction, and establishes building a "city steel mill" with integrated production and ecological harmony as the core objective of the company's sustainable development.

**[Construction of urban steel mill] The transformation of steel bases to "urban steel mills" has basically taken shape**

In 2013, the company released the first round of "Urban Steel Mill" green manufacturing plan (2013-2018). In recent years, the company has invested tens of billions of yuan in production process equipment renewal, energy conservation and environmental protection facilities renovation, plant greening upgrades, etc. The company's energy consumption per ton of steel has dropped by more than 5% year-on-year, and the level of residual energy recovery has increased by over 10%. The discharge levels of major pollutants have dropped by more than 30% year-on-year. The interaction channels between steel mills and urban industries, resources and energy have taken shape, and the level of integration of industry and city has been continuously improved. The construction of urban steel mills has achieved initial results. With the signing of a series of strategic agreements between Baowu Group and the various bases, the model of the transformation and upgrading of the "Urban steel mill" is basically determined.



### Milestones in the transformation of "Urban Steel Mills":



## 8.1 Joint construction of urban ecological environment

### 8.1.1 Construction of local ecological environment

#### Steadily push forward the project of regional fugitive dust control

Baoshan base promoted the closure reconstruction project of raw material storage yard as planned. After the completion of the project, it is expected that the regional dust reduction will be reduced by 30%, the fugitive emission will be reduced by 65%, and the floor space will be reduced by 25%.

In 2018, Baoshan Base completed the closure of the fuel storage yard, and plans to complete the closure of raw materials and fuel transfer processes and the switching of open and closed yards in 2019. The greenhouse solar photovoltaic power generation project has been

completed and officially put into use, and it is expected to add 8MW of green power.

Dongshan Base adheres to the high starting point of environmental protection and built a fully enclosed material yard to make coal into warehouses and materials into the shed.

Meishan Base began construction of coal coke silos in 2017 and is expected to be initially completed by the end of 2019.

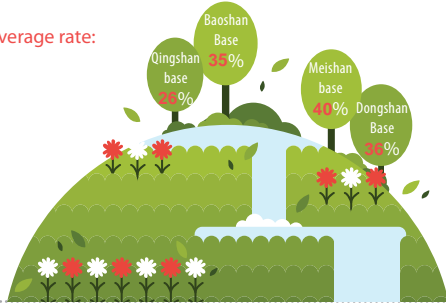
In Qingshan base, sinter ore silo is fully enclosed, and in 2018, the material yard covers a total of 296,000 square meters, and the reinforced closed belt corridor is more than 9,000 meters.



## Orderly carrying out ecology afforestation construction of the mill area

Baosteel actively meets the local urban development strategy and aims to build an urban steel mill. It proposes to maximize the role of greening, beautifying, aroma, purifying and improving the environment, and to create a modernization garden factory concept with advanced technology, pleasing environment and beautiful scenery. In 2018, Baoshan Base completed the construction of the plant area of 251,000 square meters, and the newly added green area was 151,000 square meters. The Qingshan base has newly planted 115,000 trees and shrubs, with an additional green coverage of nearly 70,000 square meters. The Meishan base has a newly added green area of 74,900 square meters. The main project of Dongshan Base passed the environmental protection acceptance.

The green coverage rate:



### 8.1.2 Strengthening disclosure of the enterprise environmental information

In 2018, the company continued to increase information disclosure. According to the requirements of the pollutant discharge permit, the unit production information, treatment facility information and monitoring information of all waste water and waste gas discharge ports shall be disclosed to the society. At the same time, pilot monitoring of soil, groundwater and surface water is promoted. There is no over-standard phenomenon throughout the year, and pollutants are discharged according to the standard. At the beginning of each year, the company has formulated its own monitoring and information disclosure plan to report to the Shanghai Environmental Protection Bureau. At the end of the year, the company completed its own monitoring report and reported it to the local environmental protection government agency for the record.

The Baoshan base realizes the networked release of local ambient air quality, provides real-time analysis of ambient air quality in the area of 30 square kilometers, and pushes air quality information services to neighboring communities in real time through various forms such as mobile APP.

### 8.1.3 Resource Sharing and Recycling

The company gives full play to the characteristics of the process equipment of the iron and steel enterprises and the role of energy and resource transformation and utilization in the urban industrial system, actively integrates into the development of urban industry, realizes the contribution of resources to the city and the sharing of resources with the city, and promotes the development of urban circular economy.

#### Energy sharing

In recent years, the company has vigorously promoted the recovery and utilization of waste heat resources. Low-temperature waste heat has become a scale and mature operation mode as a substitute for urban clean energy and heating for the community. At present, it has formed an annual capacity of 500,000 tons of hot water. At the same time, the company vigorously promotes the optimal allocation and resource sharing of regional water resources. After the transformation of Baosteel Reservoir, it can realize the annual water supply capacity of 7-8 million tons to the surrounding, and can meet the 27% of the surrounding municipal users' water volume during the dry season, which maximizing the service for the city.

#### The ecological construction of Dongshan Base is recognized

In 2018, the Dongshan base in Zhanjiang City was awarded the title of "Green Brand Enterprise" by the Department of Ecology and Environment of Guangdong Province; and ranked first in the annual evaluation of China's steel industry clean production and environment-friendly enterprises; in the same year, Dongshan base was awarded "National Metallurgical Greening Advanced Unit" by the Chinese Steel industry Association.

#### Meishan Base promotes the management of "river-leader system"

Meishan Base has established a management mechanism of "river-leader system", on the main ditches of "four horizontal and five verticals", with the main tasks of protecting water resources, preventing water pollution and improving water environment, building clear responsibilities, coordination and order, strict supervision and strong protection. The river channel management and protection mechanism provides institutional guarantee for preventing environmental risks of wastewater discharge and improving drainage management and water pollution control. After the implementation of the "river-leader system", the river leaders of all units revolved around their own responsibility fields, both commanding and levying, giving full play to the role of self-management, actively acting on the drainage problems in the region, and forming a joint force of drainage management protection.

### Efficient utilization and co-processing of solid waste resources in urban steel mills

The company actively integrates into the urban industrial ecosystem, promotes the development of urban mines, takes the solid waste consumption and resource utilization as the entry point, and promotes its low-carbon transformation while serving the city. The company continues to innovate in the co-processing of municipal wastes in metallurgical kiln. The disposal scope of waste resources is further expanded. The process technology is further matured, and the steps of metallurgical waste resources from the comprehensive utilization of society to the transformation of building materials products serving the market are accelerating. In 2018, waste paint barrel incineration was transferred from emergency to pilot promotion, and 8740 tons of external social paint barrels were disposed of in the year. The cascade recycling system of metallurgical slag resources has been basically formed, and the utilization of solid waste resources has been realized to the utmost extent.

In 2018, the company's various bases promoted various solid waste resource utilization projects. The Baoshan base completed the project of electric furnace ash returning to converter and electric furnace, cold rolling acid-base sludge back sintering production test, completed the reduction and dechlorination technology research of cold rolling desilicization mud cake; Meishan base promoted the research of sintering dry desulfurization ash into desulfurization gypsum industrial application; Qingshan base promotes the application of metallurgical high-temperature kiln co-processing, including the disposal of waste oil barrels by the converter, the injection of waste activated carbon in the blast furnace, and the disposal of tar residue in the coke oven; the Dongshan base "no solid waste leave the factory" plan is steadily advanced.

#### Metallurgical iron and steel slag assists urban sponge city development

The company's steel slag processing center is fully enclosed. It is the comprehensive processing unit with the largest deep processing of domestic single steel slag, the most complete environmental protection facilities and the highest processing standard. It has a deep separation capacity of about 2.9 million tons of steel slag, which not only realizes the refinery of metal elements and secondary slag processing materials, but also solves the environmental pollution and other problems. In 2018, it operated well. Nearly one million tons was used as raw materials for production in Baosteel, and nearly 2 million tons were homogenized and used as raw materials for direct use by high-end building materials such as building materials industries.





Dongshan base "no solid waste leave the factory"

The Dongshan base realizes 100% returning production of iron-containing dust. Among them: high-zinc dust is strongly mixed, pressed, dried and sent to the rotary hearth furnace for dezincification. The resulting metallized pellets are returned to the smelting process for utilization, the dust-removing zinc oxide powders are used as a product for external zinc refining enterprises and enters the society for recycling. The low-zinc dust sludge is sent to the sludge drying center, and after mixing and drying, the water content is reduced to less than 45%, and is utilized in the sinter plant according to the ratio.

Promote internal and external win-win cooperation

The first China International Import Expo (hereinafter referred to as the Expo) on October 5, 2018 was held in Shanghai. On behalf of Baowu Group, Baosteel took the lead in setting up the Baowu Group of the Expo, and actively communicated with overseas companies in accordance with the concept of "Drive the transformation and development of the green ecosystem of the steel ecosystem, promoted the common growth of all stakeholders". A total of 31 annual procurement cooperation framework agreements for raw materials, hot-rolled steel coils, intelligent and high-end equipment were signed. During the period, the company held seminars on smart equipment technology in the steel industry, the forum of urban steel mills, and closely followed the main theme of supply-side reform, transformation and upgrading of the steel industry, and jointly engaged in smart manufacturing and the green transformation of urban steel mills.

## 8.2 Helping the development of urban industry

### 8.2.1 Urban Strategy Emerging Industries

The company actively integrates into the development of urban industries and combines the characteristics of enterprises to support the development of urban strategic emerging industries.

Baosteel continued to vigorously promote the construction of smart manufacturing and digital steel plants, fully implement the regional intelligent manufacturing blueprint of the production plant, and launched 104 intelligent equipment transformation projects throughout the year. Start the second phase of the 1580 intelligent workshop construction task to further improve the automation level of the manufacturing process. The C008 cold rolling intelligent workshop pilot demonstration construction task was fully launched to promote capacity improvement. The company has produced the world's first large-scale blast furnace control center, the world's first continuous casting machine with four robots, and the fourth phase of silicon steel and other intelligent equipment applications. The company basically completed the Baowu Group's information integration task, realized the unified platform, language and architecture of four bases. The company accelerated the limited coverage of WISCO for eight systems, including manufacturing management and equipment management.





## 8.2.2 Technology Output

The company uses the engineering cooperation platform to integrate social resources, actively promote the industrialization of Baosteel's technology, and enable Baosteel's superior technology to be applied in other steel mills to jointly improve the technical level of China's steel industry. During the year, the company exchanged and promoted Baosteel slag treatment technology with domestic and foreign counterparts including India TATA Steel and Russian Recycling Technology Company. The company advanced the external application of "activated carbon sintering flue gas treatment technology" and resigned the intellectual property application agreement with China Metallurgical Changtian. At present, it has realized industrial application on the sintering machines of Anyang Steel Plant, Hebei Yongyang Iron and Steel, Jinnan Iron and Steel, etc. The company's BMD sintering line thermal load test was successful, the production line cost continued to decline, and the equipment was stable, marking the first successful industrialization of Baosteel's BMD technology. Advance the industrialization process of Baosteel's thin strip continuous casting technology, and discuss with the domestic and foreign enterprises and research institutions on the feasibility consulting project for the implementation of commercial production line construction. The "post-plating aerosol cooling technology" was applied for the first time in the external industrialization of Guangzhou JFE Steel Co., Ltd.

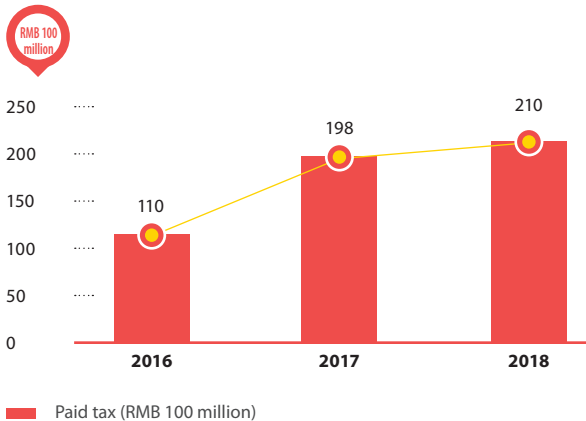
## 8.2.3 Tax

The company gives back to the society with honest management and excellent performance. In 2018, the company's merger has surrendered to the state's various taxes and fees of about 21 billion yuan. Good tax credits have enabled the company to obtain the "Shanghai Class A Taxpayer Credit Rating" for years.

Tax relief:

The company strictly abides by the laws and regulations of the state's various taxation, and rationally applies relevant preferential policies. In 2018, the state's tax reductions are as follows:

- 1) Enjoy the comprehensive utilization of resources and reduce income policy. In 2018, the annual income tax will be exempted from RMB 30 million.
- 2) Enjoy the technology research and development fee plus deduction policy. In 2018, the annual deduction of income tax will be reduced by 506 million yuan.
- 3) Enjoy the enterprise income tax policy for special equipment (environmental protection, energy saving, water saving, safe production). In 2018, the income tax will be exempted from RMB 0.03 billion.
- 4) Enjoy the deduction policy for the disabled's wages. In 2018, the corporate income tax will be reduced by about RMB 200 million.
- 5) Enjoy the special fund support policy of Shanghai High-tech Achievement Transformation Project, and receive financial assistance of RMB 126 million in 2018.



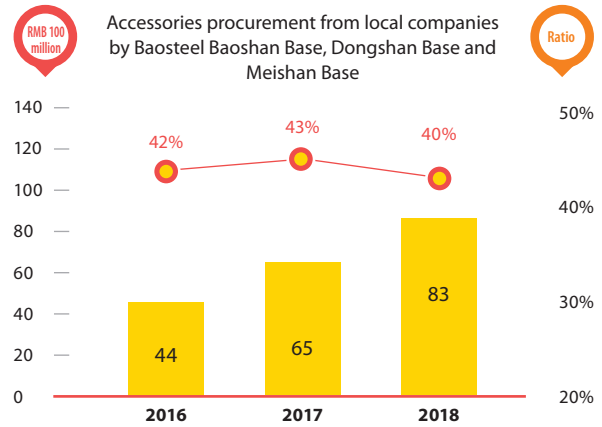
Note: The tax fee data is subject to customs value-added tax and customs duties.

## 8.2.4 Support for Enterprises

The company actively fulfills its social responsibilities, relies on its strong capital strength and its ability to control the integrity of the market, continuously supports the development of local enterprises and various small and medium-sized enterprises, establishes its close ties with local markets, and promotes local economic development.

### Support Local Business Development

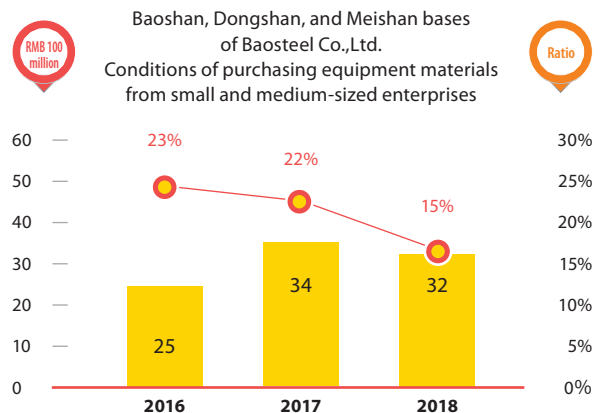
In 2018, engineering equipment was included in this management for the first time. In the past three years, the actual data of the local procurement of spare parts for the Baoshan, Dongshan and Meishan bases is shown below. (Baoshan, Dongshan and Meishan three bases are registered as local suppliers in Shanghai, Guangdong and Jiangsu provinces respectively.).



### SME support

The company innovated the disposal method of waste materials and spare parts. By adopting the "old-for-new" method for some used cold rolling rolls and hot rolling rolls, relying on the recycling of external enterprises, it seeks a win-win situation of reducing costs and fulfilling social responsibilities. In 2018, the total amount of spare parts and materials for waste materials at Baoshan Base was 48,700 tons. Through cooperation with small and medium-sized enterprises, the operating costs were reduced, and the survival and development of local medium-term enterprises were also supported.

At the same time, in order to support the development of SMEs, the company regularly tracks the performance of SME equipment procurement in each base. In 2018, the company incorporated engineering equipment into this management. The actual performance data of the company's Baoshan, Dongshan and Meishan three bases to purchase equipment materials for small and medium-sized enterprises in the past three years is shown below. (Refer to the "SME Standardization Regulations" (Ministry of Industry and Information Technology (2011) No. 300), using the standard of registered capital ≤ 10 million yuan as a supplier of SMEs).



## 8.3 Co-building Wonderful Urban Life

### 8.3.1 Enriching urban cultural life

In the 40 years of development practice, Baosteel has formed the culture with “the spirit of stricken and demanding, the path of learning and innovation, the goal of striving for first-class” and “integrity and synergy” as the core values. Baosteel culture is the spiritual wealth created by Baosteel people and is the source of the power to promote Baosteel’s second venture. In the process of Baosteel people promoting the construction of urban steel mills, Baosteel people used the urban culture to enrich the cultural connotation of Baosteel, and actively integrated Baosteel culture into the mainstream culture of the city with an open mind.

#### Series activities of walking with the reform and opening up, commemorating Baosteel’s 40-year

In December 1978, Baosteel was born at the beginning of reform and opening up, and shouldered the great mission of “making a strong steel country” in the eyes and expectations of the people of the country. The 40-year journey has been long-running. Baosteel has built a world-class steel enterprise, which has driven the development and progress of China’s steel industry and related industries. It has written a colorful chapter in the magnificent picture of the reform and opening up of the Republic. In 2018, the company held a series of commemorative activities to pay tribute to the 40th anniversary of reform and opening up and celebrate the 40th anniversary of Baosteel.



### 8.3.2 Support Development of Public Welfare

In 2018, the company’s various types of donations totaled 33.75 million yuan. Among them, there are 35 poverty alleviation projects in Yunnan, with a total fund of 26.2 million yuan, and they are stationed in Yunnan to set up aid and poverty-relief cadres in poverty alleviation counties, and help the poverty-stricken areas in Yunnan to help the poor get rid of poverty through practical actions such as funds, talents and policies.

In 2018, Baosteel was appointed by Yunnan Pu’er County to pass the national inspection and evaluation, and successfully obtained the cap of poverty alleviation. The company’s trade union won the title of “Yunnan Province 2018 Poverty Alleviation Award” advanced collective title.

#### Promoting industrial poverty alleviation

The company highlights the key points of industrial poverty alleviation. According to the ratio of whole village promotion, industrial development, education and training 5:4:1, it will increase assistance to deep poverty areas, focus on improving the production and living conditions of poverty alleviation targets, and actively promote the project as a carrier. “Yunnan products entered Baosteel and Baosteel employees approached Yunnan” activities.

### 8.3.3 Targeted Poverty Alleviation

#### Overview of targeted poverty alleviation

Baosteel actively participated in various poverty alleviation projects, and Baosteel people can be seen in a series of poverty alleviation projects. Through a series of precise poverty alleviation measures, the company has completed a series of counterpart assistance, poverty alleviation and infrastructure improvement projects in poverty-stricken areas.

In 2018, Baosteel took the power of the whole company to find its own foothold and focus on casting “helping net”. The board of directors of the company passed the resolution on multiplying fixed-point poverty alleviation funds in the middle of the year, and successfully completed the signing of two project aid construction agreements. In 2018, a total of 26.2 million yuan of aid funds were invested in Yunnan, and 35 projects were aided. Through the implementation of infrastructure construction, industrial poverty alleviation, education and training, the level of production and living in the poverty-stricken areas has been effectively improved, and the appearance of rural villages has been standardized and brightened.

See the following list of targeted poverty alleviation of listed companies for details.

Unit: RMB 10,000; Currency: RMB

Index	Quantity and Present Suitation
1. Overall Conditions	Baosteel invested build funds of 26.2 million yuan in the plan, two unplanned projects, aided construction funds of 1,339,700 (to help students and donate quilts).
Where: 1. Funds	RMB 27.034 million
2. Material deduction	RMB 505700
3. Number of helping to build poverty-stricken people out of poverty	15652 persons





Index	Quantity and Present Situation
2.Sub-investment	
<b>1.Industrial development for poverty alleviation</b>	
Where: 1.1types of industrial development	<ul style="list-style-type: none"> <li>√ Agriculture and forestry industry</li> <li>□ Tourism</li> <li>√ E-Commerce</li> <li>√ Asset Income</li> <li>□ Technology</li> <li>□ Others</li> </ul>
1.2 Number of industrial poverty alleviation projects	10
1.3 Amount of investment in industrial poverty alleviation projects	7.92 million yuan
1.4 Number of helping to build poverty-stricken people out of poverty	5641 persons
<b>2.Transfer employment for poverty alleviation</b>	
Where: 2.1 Vocational skill training investment amount	340000 yuan
2.2 Number of vocational skills training (person/time)	6288
2.3 Number of helping to build poverty-stricken people out of poverty	12898 persons
<b>3.Changing place for poverty alleviation</b>	
Where: 3.1Number of Helping employed households	
<b>4.Education for poverty alleviation</b>	
Where: 4.1Funding for poor students	2.359 million yuan
4.2Number of poor students (person)	1037
4.3Amount of improving educational resources invested in poverty-stricken areas	400000
<b>5.Health for poverty alleviation</b>	
Where: 5.1 Amount of medical and health resources invested in poverty-stricken areas	
<b>6.Ecological protection for poverty alleviation</b>	
<b>7.Catch-all guarantee</b>	
<b>8.Social poverty alleviation</b>	
Where: 8.1 Amount of poverty alleviation cooperation between the east and the west	
8.2Amount of investment in targeted poverty alleviation work	27.5397 million yuan
8.3Poverty Alleviation Fund	50000
<b>9.Other projects</b>	
Where: 9.1Project number	14
9.2 Investment amount	15.26million yuan
9.3Number of helping to build poverty-stricken people out of poverty	3183
9.4 Other project description	Used for infrastructure construction in poor villages
3. Awards	Advanced Collective of Poverty Alleviation Work in Yunnan Province in 2018

**The effectiveness of precision poverty alleviation work is remarkable**

In 2018, the 8th, 10th, and 13th sessions of the Standing Committee of the Baosteel Party Committee studied the poverty alleviation work. The company's main leaders, Dai Zhihao and Zou Jixin, went to the poverty alleviation areas in Yunnan to inspect poverty alleviation work. Poverty alleviation work has achieved remarkable results: First, the realization of poverty alleviation and cap removal. Ninglang County, Pu'er City, Yunnan Province, which is helping the poor, announced the removal of poverty. The second is to help the villagers increase their income. The per capita disposable income of rural residents in Pu'er poverty-stricken areas increased by more than 4,000 yuan, and the growth rate was 0.9 percentage points higher than the average level of Yunnan Province. The third is to reduce the incidence of poverty. The incidence of poverty in Zhenyu County dropped to 1.2% in 2017; the incidence of poverty in Ninglang County dropped to 1.28% in 2017; the incidence of poverty in Guangnan County decreased to 1.81%. Fourth, the villagers' satisfaction has improved. The poverty alleviation project helped 372,300 people in Pu'er City to get rid of poverty. In October this year, the county party committee and county government of Guangnan County sent a special banner and a thank-you letter to "Guangnan really help".



**Following-up precision poverty alleviation plan**

Guided by the spirit of the 19th National Congress of the Communist Party of China, under the unified requirements of the Party Central Committee and the State Council, we will strive to make practical measures in the targeted poverty alleviation and precise policy, achieve practical results in precise advancement, and see results in precision landings; fully understand the market conditions in poverty alleviation areas, county sentiment, nostalgia, village situation, summing up experience, and implementing poverty alleviation work to the lowest level; according to the State Council's spirit of encouraging consumption and poverty alleviation, mobilize cadres and workers to purchase designated agricultural and sideline products in poverty alleviation areas, and enhance employees' sense of honor for targeted poverty alleviation work. The company will further seek ways and means to improve the level of local industry development, such as using the advantages of Baosteel to help the industrialization of characteristic agriculture in designated poverty alleviation areas; plan and organize the professional knowledge training of targeted poverty alleviation enterprises and government managers, Great skills training for the rural workforce.

# APPENDIX

## Stakeholders Q&A



Questioner:



Answer:



Questioner:

. How does the company control costs, and what specific cost reduction work has been done?



Answer:

"Cost revolution" ranks the top among the company's five core competencies. Its core is to drive the business sector's management reforms related to cost and value from the source in terms of cost or value, so as to achieve cost reduction or comprehensive value enhancement. In response to the historical lowest point of supply and demand in the steel industry in 2015, the company raised the "cost change" from a simple cost reduction to a strategic height. It is planned to use five to ten years to make it a new competitive advantage for the future. The "cost side" shall be upgraded to the national and even the world's leading level. To this end, the company has a consensus and initiative, first of all, the top-level design, and strive to change the past short-term cost-reduction behavior, with a three-year, one-phase rolling plan cost reduction special plan, based on the five-dimension system of cost reduction and economic operation, including "change-driven, management cost reduction, synergistic cost reduction, technology", promotes the scientific reduction of the whole system; at the same time, the innovation incentive and restraint mechanism stimulates the talents of employees, and focuses on solving the endogenous dynamic problems in the process of reducing costs of enterprises, from the "top-level drive". The transformation of "base-level drive"; in the process of concrete promotion, it will not break or not, and refine all the work according to "all costs can be reduced", and realize the cost reduction of all employees, the whole system, and the whole process of organization and implementation. Through three years of rolling forward, the cost reduction has supported the company's current performance improvement, the enterprise safety margin has been effectively improved, and the horizontal cost competitiveness in the industry has continued to emerge. The cost change of Baosteel Co., Ltd. is always on the road!



Questioner:

Domestic private enterprises gradually enter the high-end market, and competition will become more and more fierce. Does this have an impact on the company's long-term development strategy?

Answer:

Baosteel Co., Ltd. is one of the world's most advanced enterprises with the most complete steel varieties. It always adheres to the development path of "innovation, coordination, green, openness and sharing". It has a world-renowned brand, world-class technology and service capabilities. The main business of steel focuses on the production of high-tech, high value-added carbon steel sheets, thick plates and steel pipes. In the future, the company will continue to implement a high-quality development strategy characterized by technological leadership, pay close attention to the high-speed growth of China's high-tech manufacturing industry, and research and develop high-tech materials technology, and strive to become the most competitive steel company in the world and the most valuable listed company.



# APPENDIX

## Stakeholders Q&A



### Questioner:

Now many steel companies in China can produce automobile panels. How can the company maintain its competitive advantage?

### Answer:

The company has formed a full range of automotive sheet products covering all strength grades in the automotive panel, and is a global leader in automotive ultra-high-strength steel varieties. The company's new round of planning will further strengthen its technology leadership strategy, focusing on subversion. The company will focus on disruptive, forward-looking and breakthrough technologies, and systematically plan and layout its competitiveness in automotive panel product innovation, process and equipment innovation to maintain its competitive edge in automotive panels.



### Questioner:

Is it possible to achieve modular, dust-free, smart steelmaking? How to make steelmaking a healthy ecosystem?

### Answer:

Advancing urban steel mills and smart manufacturing is an important strategic move for Baosteel. For this reason, the company has prepared corresponding special plans to promote them in 2016. Based on the status quo of the process characteristics and equipment level of Baosteel's steelmaking production, we focus on automation, modelling and intelligence, and promote the production with less people, centralization and refinement. Great investment is actively promoting the implementation of relevant technical transformation projects in accordance with the overall deployment of the company.



### Questioner:

Xiao Yaqing, director of the State-owned Assets Supervision and Administration Commission of the State Council, said that it promotes the market value management of state-owned enterprises: What are the measures for the company's market value management?

### Answer:

The company has always attached great importance to the capital market, insisted on a high proportion of cash dividends, paid close attention to the capital market performance of the company's stock price, and in the period of continued sluggish share price performance, it has implemented the increase of major shareholders, management overweight, and inefficient assets. Various measures, including repurchase and equity incentives, has been adopted to boost share prices. In the future, the company will continue to maintain positive interaction with the capital market and continuously strengthen in-depth communication with investors.





## Readers' feedback

---

Baosteel Co., Ltd. cares much about your options on this Sustainability Report. Please give back your suggestions and options on this Report for our continuous improvement.

---

Please answer the following questions and then fax to + 86-21-2664 9109.

You can select to answer via the web (<http://www.baosteel.com/>).

---

**1** Do you find what you need in this Report? If not, please write down the contents you need.

---

**2** Which part are you interested in?

---

Please inform us of your information if you are willing to:

Name:	<input type="text"/>	Occupation:	<input type="text"/>
Organization:	<input type="text"/>	Contact address:	<input type="text"/>
Postal code:	<input type="text"/>	e-mail:	<input type="text"/>
Tel.:	<input type="text"/>	Fax:	<input type="text"/>

---

### Our contact information:

Energy and Environmental Protection Department of Baosteel Co., Ltd.  
Energy and Environmental Protection Department of Baosteel Co., Ltd., Yuepu, Baoshan District, Shanghai, China  
Postal code: 200941  
Tel.: +86-21-26648698  
Fax: +86-21-26649109  
E-mail: [tangxf@baosteel.com](mailto:tangxf@baosteel.com)



For more information, please visit  
[www.baosteel.com](http://www.baosteel.com), or  
join our public WeChat "hiBaosteel"