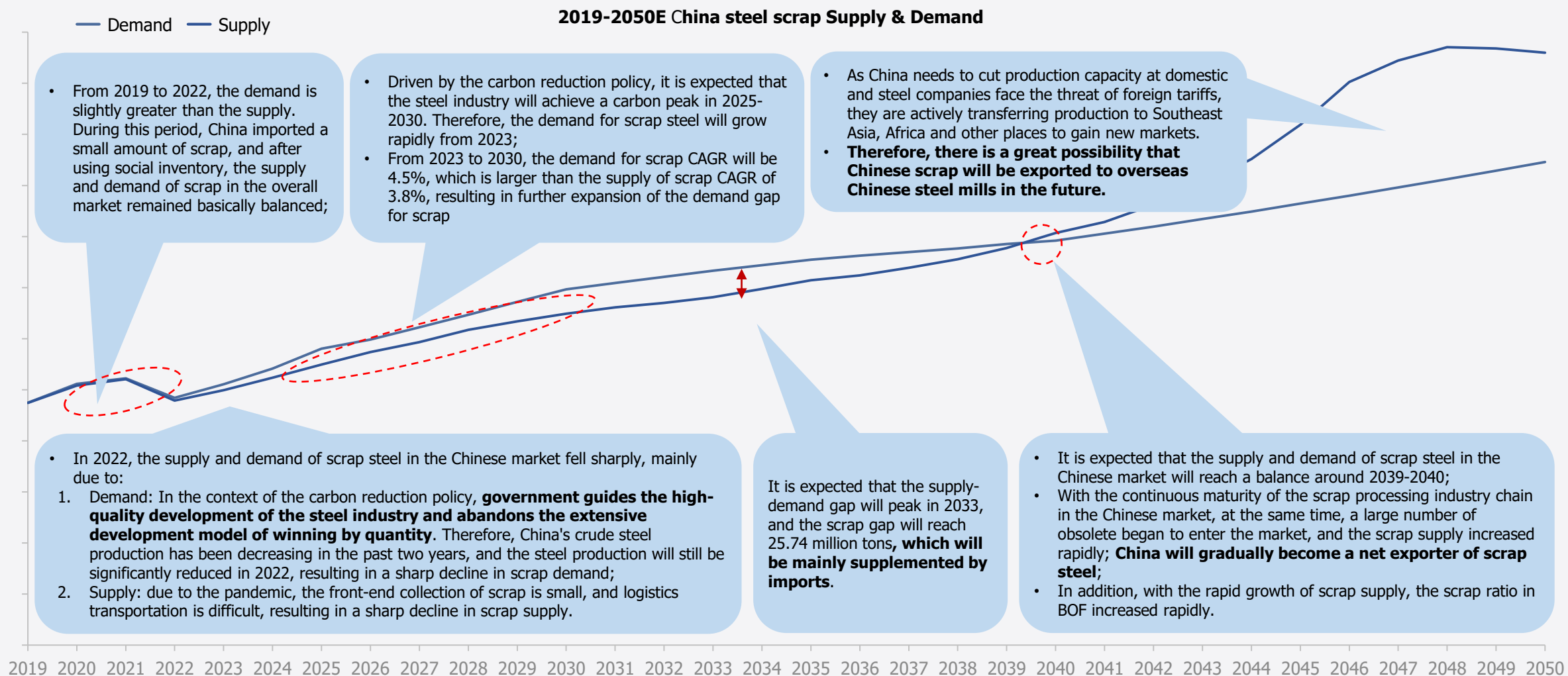




China Scrap Steel Market Long-term View

Before 2040, China will face supply shortage. After 2040, scrap supply will exceed demand and become a net exporter of scrap

➤ China steel scrap supply and demand balance



China's scrap supply and demand have strong support and driving force, and China's scrap market will develop and improve rapidly in the future

➤ Key drivers of China scrap supply & demand

	Supply	Demand
Political	<ul style="list-style-type: none"> • China has developed a green economy and circular economy, and began to pay attention to the recycling and reuse of renewable resources. In recent years, it has successively promulgated the "14th five year plan for the development of circular economy" and the "Guiding opinions on accelerating the establishment and improvement of a green and low-carbon circular development economic system" to promote the recycling and reuse of scrap steel 	<ul style="list-style-type: none"> • In the context of carbon reduction, the goal of steel mills is clear: all regions have successively issued relevant policies, such as the implementation plan for carbon monoxide emission reduction and control of Tangshan steel mills, and the demand for scrap steel will continue to grow in the future;
Economic	<ul style="list-style-type: none"> • With China's reform and opening up, China's entry into the WTO, and the massive investment in infrastructure and real estate after 2008, China has maintained sustained high economic growth, driving the growth of steel consumption. During this period, Chinese society has accumulated a large amount of steel, which will be gradually released; 	<ul style="list-style-type: none"> • China will develop a green economy, from rapid growth to high-quality development. The total output of crude steel will be compressed year by year, the proportion of high-quality steel will increase rapidly, and the demand for scrap steel, especially high-quality scrap steel, will also expand rapidly;
Sociocultural	<ul style="list-style-type: none"> • Construction: In order to stimulate the economy, improve residents' living conditions and improve supporting facilities, China built a large number of residential and non residential buildings at the beginning of this century, which will become an important source of scrap steel at the end of its life cycle; • Automobile: The improvement of people's living standards and policies to encourage automobile consumption will increase automobile consumption and slightly shorten service life; In recent years, the government has strongly supported the automobile recycling industry, which is relatively mature at present; • Machinery: The service life of different equipment types in the machinery industry varies greatly. But its service life is basically fixed. Due to the lack of policy support and the generally high price of relevant equipment, the collection rate of the machinery industry is relatively low; • Home appliance: Service life of home appliance varies widely, similar to cars, with the consumption upgrading and policy encouragement, the consumption of household appliances increased and the service life shortened slightly. Due to the fact that some obsolete household appliances have been repaired and entered the second-hand market, and there are few formal dismantling enterprises in the industry, the state subsidies are also getting lower and lower, resulting in high costs and low profits in the industry; • Others: Includes infrastructure, shipbuilding and other industries, and its service life is 15-30 years. 	<ul style="list-style-type: none"> • BF: In order to increase output and fuel ratio, steel mills generally add 25kg~50kg, with a maximum of 200kg scrap; • BOF: Considering the cost performance, steel mills will add scrap steel appropriately; Due to technical limitations, a maximum of 35% scrap is added; • EAF: At present, China's EAF scrap addition ratio is still low, but with the strengthening of the implementation of environmental protection policies in the future; The increase of scrap supply has enhanced the economy of EAF. Theoretically, 100% scrap can be used in the future;
Technological	<ul style="list-style-type: none"> • The progress of scrap yard in processing technology promotes the supply of scrap steel and improves the quality of scrap steel; • With the technological progress of steel mills and downstream processing enterprises, yield loss will decrease year by year, but due to the relatively small proportion of scrap produced in this part, it has no great impact on the rising trend of overall supply. 	<ul style="list-style-type: none"> • The development of steel-making technology will promote the proportion of scrap materials, such as quantum EAF;
Environmental	<ul style="list-style-type: none"> • China is gradually establishing and developing an environmental protection system and begins to pay attention to waste treatment and recycling of renewable resources; This will further promote the improvement of the recycling system and promote the collection and reuse of social scrap. 	<ul style="list-style-type: none"> • In the future, the steel industry will further improve the degree of concentration, while large enterprises will assume greater social responsibility, and steel mills will pay more attention to environmental protection;
Legal	<ul style="list-style-type: none"> • In 2020, China began to implement the solid waste law, promulgated the standards for the import of scrap steel, and imposed stricter requirements on the import of scrap steel, promoting the import of high-quality scrap steel. 	<ul style="list-style-type: none"> • China has opened up imports from the legal level. In the next few years, there will be a large gap in scrap demand, and scrap imports will expand rapidly. While meeting the market demand, it will also promote the improvement of the domestic scrap industry chain;

At present, Chinese scrap consumers pay more attention to cost performance and pay less attention to quality

➤ China scrap application and EAF

<p>Quality</p>	<ul style="list-style-type: none"> • Routine inspection: <ul style="list-style-type: none"> ➤ Present: Conduct radiation detection when arrive; Then check the cleanliness, dryness and overall dimension of the scrap by manual visual inspection, and judge the scrap grade; ➤ Future: After receiving radiation detection, automatic detection equipment will detect and grade scrap, which is more objective and accurate. • Chemical composition inspection: <ul style="list-style-type: none"> ➤ Present: Some special steel production mills will carry out chemical composition testing, such as Beiman Special Steel, which is mainly supplied to military industry. Generally, P, S, Cu, Zn and other elements will be tested, and the content of Cr, Mn or other designated alloy elements will also be tested according to the production plan. Ordinary steel mills will not carry out chemical composition testing; The general detection cost is 20-40 yuan/ton. ➤ Future: With the increase of the output of special steel, mills pay more and more attention to the quality of scrap steel; At the same time, due to the increasing demand for steel in the downstream industry, more and more steel products contain other metals. Therefore, in the future, steel will gradually expand the chemical composition detection of scrap.
<p>Cost</p>	<ul style="list-style-type: none"> • Processing: The processing equipment and processes of different industries are different. The processing process of automobile, machinery and other industries is short and the cost is low, which is generally about 260 yuan/ton (including logistics fee); However, the disassembly process of the household appliance industry is complex, resulting in a higher overall cost, about 480 yuan/ton (including logistics fees); • Future trend: <ul style="list-style-type: none"> ➤ Labor: Mainly considering the rise of CPI and salary, as well as the sharp decline of China's labor population in the future, labor costs will continue to grow in the future; ➤ Energy: It is mainly electricity. On the whole, under the background of carbon reduction, the price of industrial electricity will maintain an increasing state. In the long run, with the promotion of green electricity and the reduction of power access threshold, electricity prices will decline slightly; ➤ D&M: The increase in the mechanization rate of processing enterprises leads to an increase in short-term equipment investment. In the long run, this will improve production efficiency, allocate depreciation costs, and reduce D&M costs. ➤ Land: Policies are controlling industrial land, which leads to land shortage. In the short term, the land cost will rise rapidly, while the scale and mechanization rate of processing enterprises will share part of the land cost, and the long-term growth of land cost will slow down; ➤ Environment: with increasingly strict environmental protection supervision, enterprises' investment in environmental protection will continue to grow; ➤ Others: Mainly the management cost of the enterprise. With the improvement of the recovery system, it is expected that the management cost will decline year by year; ➤ Profit: With the rapid growth of steel mills' demand for scrap steel and the improvement of the standardization and mechanization rate of the industry itself, the profit increases year by year.
	<ul style="list-style-type: none"> • Application: <ul style="list-style-type: none"> ➤ Composition detection: if steel mill needs to carry out composition detection, it will generally sample and detect each vehicle, and the general cost is 20-40 yuan/ton ➤ Preheating: Currently, ladle car preheating and gas baking are mostly used. Among them, the preheating of ladle car uses the residual temperature in the car, which does not need to take other costs; The cost of gas baking is generally 20-25 yuan/ton; ➤ Taking Nangang as an example, the price spread between its BOF 20% scrap ratio and EAF 40% scrap ratio is about 80 yuan/ton
<p>EAF</p>	<ul style="list-style-type: none"> • 36 Mt EAF capacity will be added in the following years; • EAF capacity will be concentrated in northern and southern China due to policy support, and the increasing capacity of EAF will increase the demand for cross-province procurement.