CHINA SCRAP MARKET 2018

CURRENT MARKET DYNAMICS AND OUTLOOK TO 2025

SCRAP SUPPLY

Scrap supply in 2017 and an outlook taking account for home, prompt, and obsolete scrap.

TRADE IN SCRAP

Imports, exports, and a close look at the interplay between Chinese and overseas markets

DEMAND

One of the key questions is China's changing scrap consumption is the rapid increase in EAF capacity.

INTRODUCTION

BY TOMAS GUTIERREZ

China's scrap sector is undergoing a period of significant change after three decades of rapid acceleration in steel production. Scrap supply has already begun to increase steadily and the pace of increase is expected to increase for decades to come. How fast and how much supply will become available is still a matter for debate however with a wide variance in forecasts from different observers. The dependence of scrap forecasting on a dizzying array of assumptions means China can come out of different models as a net importer or a net exporter of scrap in the coming years, and most likely will experience both. A dependence on policy, whether it is altering the lifespan of products or reducing the processing costs of scrap, also makes for another level of unpredictability. The problem cannot be ignored however. The implications of China's stated aims for the scrap, iron ore and wider steel sector could be enormous in the coming years. And when something enormous happens in China, the repercussions tend to be felt around the world.

This report is designed to provide a solid grounding for anyone looking at the sector, and to describe Kallanish's base case for Chinese scrap in the years through to 2025. The implications of our research are that scrap supply sill increase rapidly, but that China will remain a net importer by 2025. Scrap will replace primary ironmaking however, leading to lower demand for iron ore and coking coal.

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SCRAP SUPPLY IN 2017

Home scrap

Home scrap, or own arisings, is scrap generated by steel production processes themselves. This includes waste from the steelmaking process, offcuts from handling coils before and after rolling and other material lost during processing before the finished steel product leaves the mill. This is almost fully recovered, especially at mills which have furnaces to recover minerals from dust and slag. The level of home scrap generated depends on the efficiency of the steel producers, the level of recovery in the mill and the amount of processing completed before the product leaves the mill.

Figure 1: China's home scrap generation 2001-2017

Source: MPI, NBS

MPI's data shows the proportion of home scrap generated per tonne of crude steel produced fluctuating with a declining trend in recent years, from just under 9% in 2001 to slightly under 5.1% in 2017. This has meant that, although official crude steel output has increased almost 449% over 2001-2017, home scrap generation has in fact increased around 214%. With official crude steel production of 831.7 million tonnes in 2017, that means 42.16mt of home ferrous scrap, down 3.5% year-on-year. <Figure 1.>

Prompt scrap

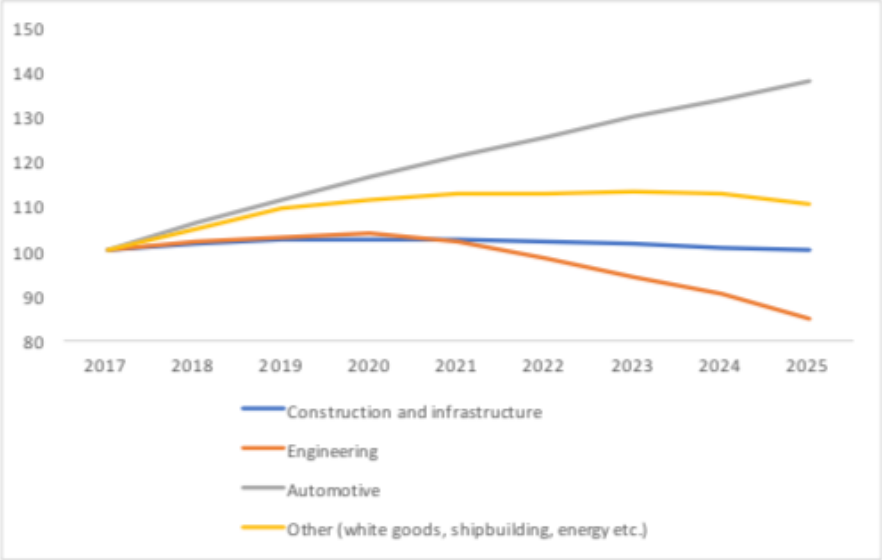
Prompt ferrous scrap is generated by almost every kind of manufacturing process involving ferrous metals. The core of the problem is that, unlike concrete or plastic which are typically formed into a final shape when settling from a liquid to a solid, steel is cooled to a solid and then processed several times. Each time the metal is cut, re-welded, shaped, and cut again generates some scrap. Studies by Welmet2050 at Cambridge University found the total cumulative yield loss from casting to consumer good could reach more than 50% for some products such as car door panels. A global steel material flow chart for 2008, also from Welmet2050, estimates some 15% of crude steel output was returned as scrap by the manufacturing sector,

new facilities producing electric vehicles will be replacing supply of conventional fuel vehicles. At the same time, investment in more efficient manufacturing processes, including widespread robotics and to a lesser extent 3D printing, will increase the material efficiency of manufacturing, meaning less scrap generated. High output volumes and the growing need for spare parts means growth may continue for longer than other manufacturing sectors, but there will still be a slowdown. <Figure 6.>

"It has been assumed that all housing built before 1999 will be demolished by 2030"

Generation from engineering and other manufacturing sectors is expected to slow further as high capex levels ease and become increasingly focused on less steel intensive goods. Prompt scrap from construction activity is also likely to change significantly. Firstly, construction activity is topping out and so the volume of scrap from basic processes such as cut and bend and welding should begin to decline. Secondly, the promotion of the use of structural steels sill also increase material efficiency and reduce the volume of scrap generated.

Figure 6: Prompt scrap outlook to 2025 by sector (indexed to 2017)



Source: Kallanish

Overall, growth in prompt scrap generation is expected to continue to slow, with volumes topping out around 2021-2022. Volumes are then expected to see a gentle decline to reach around 104mt by 2025, only slightly higher than expected volumes in 2018.

Obsolete scrap

Obsolete scrap is moving in the opposite direction and the increase in availability should far exceed the small net decline in home and prompt scrap over 2018-2025. The cumulative volume of steel produced by China by the end of 2017 exceeded 11 billion tonnes, without counting induction furnaces. More than 80% of that was produced since 2001, and almost 50% since 2010. The pace at which that steel (at least whatever has not been exported) comes back as scrap is set to increase rapidly in the coming decades. Not all sources of obsolete scrap will increase however, especially not in the years to 2025. In particular, the shantytown redevelopment programme. Targets for this have been lowered to 5.8m units in 2018 from 6m in 2017 to ease the financial burden on local governments.

That rate of replacement is also expected to continue to ease in the coming years as obvious targets for demolition begin to run out. The sector is likely to see a 3% drop in scrap generation this year in line with the lower target, and could see further declines out to 2025, with total generation estimated at some 12m t/y by then.<Figure 7.>

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