This report includes forward-looking statements that are based on current expectations about future events and are subject to uncertainties and factors relating to operations and the business environment, all of which are difficult to predict. Although WSD believes that the expectations reflected in its forward-looking statements are reasonable, they can be affected by inaccurate assumptions made or by known or unknown risks and uncertainties, including, among other things, changes in prices, shifts in demand, variations in supply, movements in international currency, developments in technology, actions by governments and/or other factors.

A "Dynamic" World Iron Ore Cost Curve

The World Iron Ore Cost Curve includes (Figure 1a): (a) for non-China, 45 operating and 10 planned mines with a total capacity of 874 million tonnes, FOB the port of export; and (b) for China, 45 individual mines, 10 steel-mill-weighted average cost mines and 21 provincial composite cost estimates with a combined capacity of 439 million tonnes, FOB the mine. The operating cost of the median-cost mine globally is US$43 per tonne. The preponderance of the high cost mines are located in China.

WSD's composite Pellet Cost Curve for non-Chinese facilities (Figure 1b) includes: detailed process-by-process cost estimates — an approach appealing to mining engineers — for 22 operating pellet plants with 178 million tonnes of capacity, and four planned plants with 34 million tonnes of capacity. The median cost for four different types of pellets — acid, fluxed, low-silica fluxed and DR-grade — is US$66 per tonne, FOB the port of export.

Traditionally, blast furnace pellet prices have sold at a premium of US$15–60 per tonne to sinter fine prices. Typically, when iron ore prices are on the upswing, the pellet premium increases; and, when prices fall, the pellet premium decreases. DR-grade pellets historically have sold at a 5–10% premium over blast furnace pellet; often, they've been "sticky" on the downside when sinter fine prices decline.

China a Steel Scrap Exporter: It's Only When, Not If

The obsolete scrap reservoir in China that, on average, is 10–40 years old is poised to explode in the next 25 years. Already, the growth rate of the Chinese reservoir since the dawn of the new millennium has been large; in 2000 the figure was 23 million tonnes, while in 2012 it was 57 million tonnes. Based on World Steel Dynamics' Global Metallics Balance system, by 2025, the Chinese obsolete scrap reservoir may rise to 220 million tonnes. By 2035, the reservoir could be 412 million tonnes.

The expansion of the Chinese obsolete scrap reservoir will have structural ramifications on both the Chinese and global steel industry. The implications of this development are: (a) sizable scrap exports from China (and the 40% export tariff on ferrous scrap is removed); (b) rising EAF production as a percentage of crude steel production; (c) a larger proportion of steel scrap being charged into BOFs; (d) older blast furnaces being abandoned; and (e) fewer traditional — coke/BF/BOF — greenfield plants being constructed.

World Steel Dynamics (WSD) is a leading steel information service in Englewood Cliffs, N.J.

WORLD **STEEL** DYNAMICS

WSD's steel experience, steel database and availability of steel statistics are the principles for performing steel forecasts, studies and analysis for international clients. WSD seeks to understand how the "pricing power" of steel companies the world over will be impacted by changes in the steel industry's structure.

The views and opinions expressed in this article are solely those of World Steel Dynamics and not necessarily those of AIST.

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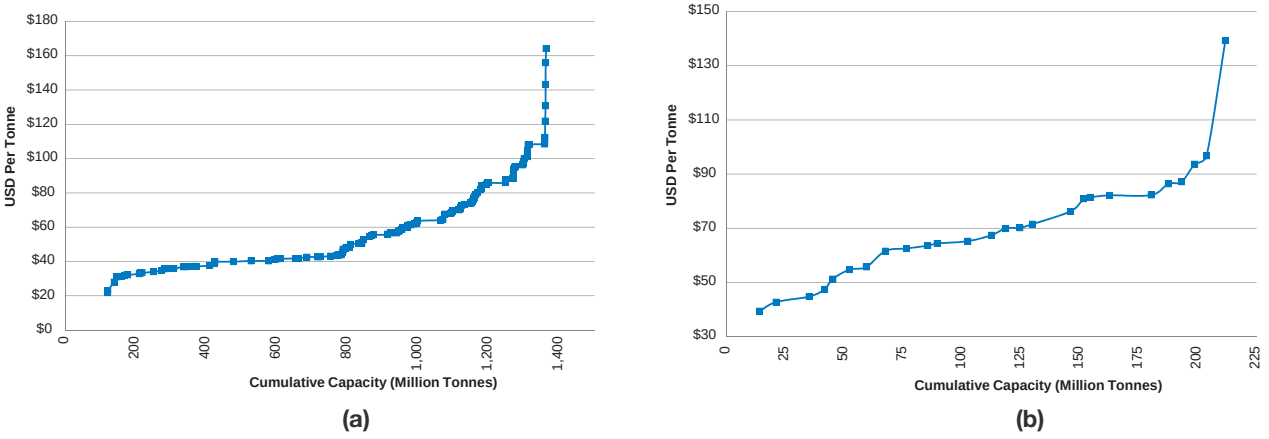
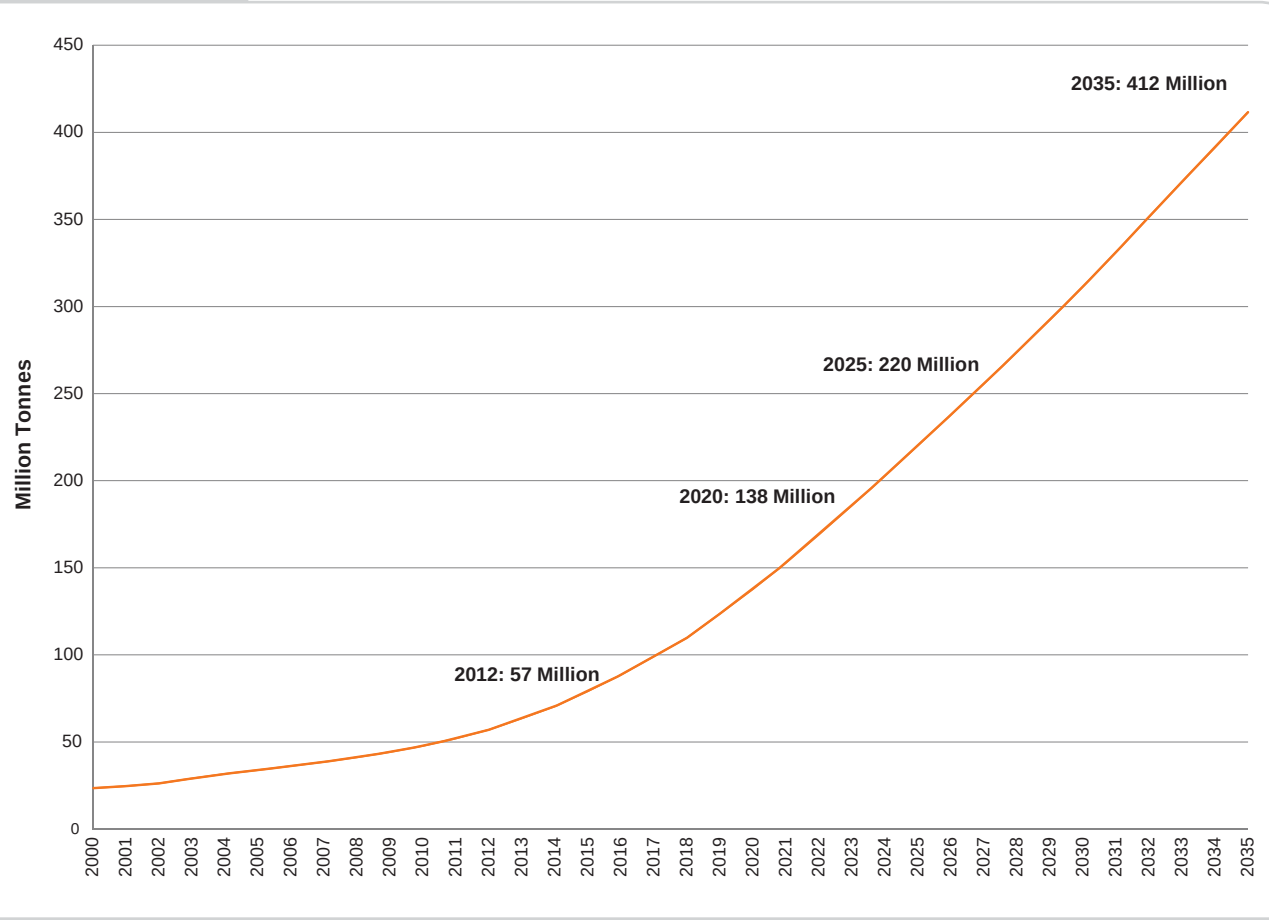
Figure 1



World Iron Ore Cost Curve (normalized 62% Fe) (a), and Composite Pellet Cost Curve (normalized 65% Fe) (b). Source: WSD's World Iron Ore Cost Curve.

Figure 2



Growth of China's obsolete scrap reservoir.