

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



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Q. What is WSD's long-term view on the supply/demand balance for steelmakers' metallics?

A: The WSD Global Metallics Balances system indicates that the metallics requirement for the global steel and foundry industries in 2010 will be about 1.80 billion tonnes, composed of 0.78 billion tonnes in China and 1.02 billion tonnes elsewhere.

The source of the 1.80 billion tonnes of metallics in 2010 is estimated to be:

- Pig iron production at 1.05 billion tonnes, including 594 million tonnes in China.
- Steel scrap and hot metal substitute production of 73 million tonnes, including virtually nil in China.
- Home steel scrap recovery of 166 million tonnes, including 73 million tonnes in China.
- New steel scrap recovery of 188 million tonnes, including 58 million tonnes in China (which we assume recovers 10% of what's shipped to the steel marketplace, versus 13.7% for the rest of the world).
- Obsolete steel scrap requirement of 305 million tonnes, including only 24 million tonnes in China (or 50% of the obsolete steel scrap reservoir of 47 million tonnes that is, on average, 10–40 years old).

The global reservoir of obsolete steel scrap that is 10–40 years old, on average, is estimated to be 359 million tonnes – or 11.1 billion tonnes when multiplying 359 million tonnes by 31 years. The growth of the reservoir to 2020 is a function of apparent steel consumption 10–40 years earlier, less the steel scrap that has been recovered since then. Given that steel demand 10–40 years ago was growing at a slow rate (especially from the mid-1970s through the early 1990s) and the recovery rate from the reservoir has risen, WSD estimates that the non-Chinese obsolete steel scrap reservoir will expand only about 1% per year through 2020.

Regarding the Chinese metallics balances situation, given that the obsolete steel scrap reservoir is expanding at a 10% rate, this provides the potential for more EAF steelmaking in the country and/or a lower ratio of pig iron to metallics in the steelmaking furnaces. Overall,

it appears that the Chinese will have sufficient metallics through 2020.

Outside of China, it's a different story. Our Global Metallics Balances system indicates that the obsolete steel scrap requirement rises from 281 million tonnes in 2010 (90% of the obsolete steel scrap reservoir that is, on average, 10–40 years old) to 393 million tonnes in 2020 (115% of the reservoir).

Non-Chinese blast furnace production from 2010 to 2020 rises 3.6% per year to 654 million tonnes from 458 million tonnes – an increase of 196 million tonnes. However, given that capital spending in the non-Chinese steel industry ties into profit results and capital spending at the primary end of the steel business is so costly, WSD wonders if pig iron production can rise this much.

We assume that, from 2010 to 2020, steel scrap substitute and hot metal substitute production outside of China rises to 150 million tonnes from 73 million tonnes (including Corex and directly reduced iron units). If steel scrap prices are high, this rise in output may be more likely to be achieved than the forecast rise in pig iron output.

The non-Chinese steel industry may face metallics constraints in the next decade. There may be a glut of iron ore, but not enough places to use it. Partial proof that this concept is valid may be the relatively strong demand for steel slab at the present time. The purchase of steel slab permits steel mills to produce more finished products without ramping up their steel production. The current high price of steel scrap by historical standards, given the current lethargic global steel production trend, may be a sign that steel scrap has a tighter supply/demand balance than WSD had thought would be the case. ♦

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WSD Global Metallics / Major Materials Requirement

(million tonnes, unless otherwise specified)

	1990	1995	2000	2005	2006	2007	2008	----- Forecast -----		CAGR 2010– 2020	
								2009	2010	2020	
Apparent steel consumption (ASC)	643.4	640.9	778.1	1,049.2	1,152.0	1,237.3	1,200.2	1,117.6	1,313.8	1,858.5	3.53%
Per annum change from prior period (%)	1.9%	0.8%	4.0%	5.5%	9.8%	7.4%	-3.0%	-6.9%	17.5%	3.8%	
Crude steel production	769.6	748.9	849.5	1,143.8	1,247.1	1,345.7	1,326.1	1,219.7	1,427.0	2,031.2	3.59%
Ratio to ASC	1.196	1.169	1.092	1.090	1.083	1.088	1.105	1.091	1.086	1.093	
BOF Steel Production	435.1	449.3	524.1	745.8	824.3	892.9	891.5	860.5	996.0	1,421.9	3.62%
Ratio to Crude Steel	0.565	0.600	0.617	0.652	0.661	0.664	0.672	0.706	0.698	0.700	
OH (and all prior to 1975) prod'n	117.0	56.0	38.0	32.0	32.6	33.2	28.8	27.9	31.7	5.0	-16.87%
Ratio to Crude Steel	0.152	0.075	0.045	0.028	0.026	0.025	0.022	0.023	0.022	0.002	
EAF steel production	217.5	243.6	285.1	361.2	391.7	419.4	405.8	331.3	399.6	604.4	4.22%
Ratio to Crude Steel	0.283	0.325	0.336	0.316	0.314	0.312	0.306	0.272	0.280	0.298	
Foundry production	57.5	54.5	56.3	66.7	68.2	69.7	69.3	72.2	84.5	113.7	3.02%
Ratio to Crude Steel	0.075	0.073	0.066	0.058	0.055	0.052	0.052	0.059	0.059	0.056	
Pig iron requirement	526.0	520.8	571.4	785.4	878.1	949.8	931.0	898.3	1,052.4	1,485.8	3.51%
Ratio to BOF production	1.209	1.159	1.090	1.053	1.065	1.064	1.044	1.044	1.057	1.045	
Metallics requirement	1,016.3	982.7	1,095.2	1,433.0	1,569.1	1,688.6	1,649.9	1,534.9	1,801.7	2,548.2	3.53%
Ratio: Metallics/Crude + Foundry	1.229	1.223	1.209	1.184	1.193	1.193	1.182	1.188	1.192	1.188	
Sources of Metallics											
BF ore-based metallics with mill scale	528.1	522.8	574.1	792.9	887.7	960.4	941.3	934.2	1069.8	1510.4	3.51%
		1.0040	1.0048	1.0096	1.0108	1.0111	1.0110				
HMS (hot metal substitute) requirement	0.0	0.4	1.2	1.9	2.6	2.6	3.5	4.9	5.5	14.2	9.93%
Ratio to BOF production	0.000	0.001	0.002	0.002	0.003	0.003	0.004	0.006	0.006	0.010	
SSS requirement (includes use in BF)	15.8	30.1	40.3	58.5	61.3	67.2	69.3	65.2	67.4	151.1	8.41%
Ratio to EAF output	0.073	0.124	0.141	0.162	0.157	0.160	0.171	0.197	0.169	0.250	
Steel scrap requirement	488.8	445.6	497.4	604.3	644.9	688.1	664.8	546.46	659.05	918.63	3.38%
Ratio to EAF output	2.247	1.829	1.745	1.673	1.646	1.641	1.638	1.649	1.649	1.520	
Of which: Home scrap generated	164.7	143.6	135.6	168.6	173.4	190.0	167.2	158.8	166.3	218.8	2.78%
Ratio to Crude Steel + foundry prod'n	0.199	0.179	0.150	0.139	0.132	0.134	0.120	0.123	0.110	0.102	
Of which: New scrap generated	114.9	103.4	119.6	156.6	170.5	180.5	174.1	143.8	187.9	249.0	2.86%
Ratio to ASC	0.179	0.161	0.154	0.149	0.148	0.146	0.145	0.129	0.143	0.134	
Obsolete scrap requirement (includes use in BF)	209.2	198.6	242.2	279.0	301.1	317.6	323.5	243.8	304.9	450.8	3.99%
Ratio to 10–40 yrs avg reservoir	0.951	0.772	0.819	0.850	0.901	0.933	0.933	0.691	0.849	0.958	
Per annum change from prior period (%)	-0.5%	-3.7%	1.2%	-2.7%	7.9%	5.5%	1.8%	-24.6%	25.1%		
10–40 yrs avg obsolete scrap reservoir	220.1	257.3	295.8	328.2	334.3	340.4	346.7	352.8	359.3	470.7	2.74%
Per annum change from prior period (%)	5.0%	3.2%	2.8%	2.1%	2.0%	2.0%	1.9%	1.8%	1.8%	3.5%	

Source: WSD Estimates

*To submit your questions for WSD, e-mail WSD@aist.org.
Please include your full name, company name, mailing address and e-mail in all correspondence.*