

# WORLD STEEL DYNAMICS

***SAMPLE***

Global Steelmaking  
Capacity Outlook

**CORE  
REPORT  
C**

March 2008

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# WORLD STEEL DYNAMICS

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# WORLDSTEELDYNAMICS

## *Chapter C-1* *Executive Summary* *World Steelmaking*

*Steelmakers' prospects to 2015 are mixed, given: consolidations in most parts of the old industrial world; a resurgence of steelmaking capacity addition in the Far East (particularly India), in Latin America (Brazil) and in the Middle East; a revitalization of the Russian steel industry and continued massive expansion in China. One factor stimulating new capacity is the technological revolution which is sweeping the industry. New technologies attract capital spending.*

*Capacity is a fluid subject. Many factors determine the availability of capacity, from engineering estimates of capability to the price at which capacity is available.*

*The future structure of the global steel industry has never been more promising than at present. For over two decades, we have been monitoring the steady shift in steelmaking capacity to the Pacific Basin. As of 2000, however, the trend accelerated as China dramatically increased its capacity and steel output for the region in 2005 exceeded that of the Atlantic Basin and by 2007 had totally eclipsed it.*

*Previously, we had also been looking for the EAF process to become an even more significant factor vis-à-vis the BOF process in most countries. But, as the dominant steelmaking expansionary countries (Brazil, China and India) and regions (CIS and Middle East) are not EAF friendly, the BOF process has retained its dominance and in 2007 had an overwhelming dominant 65% global share.*

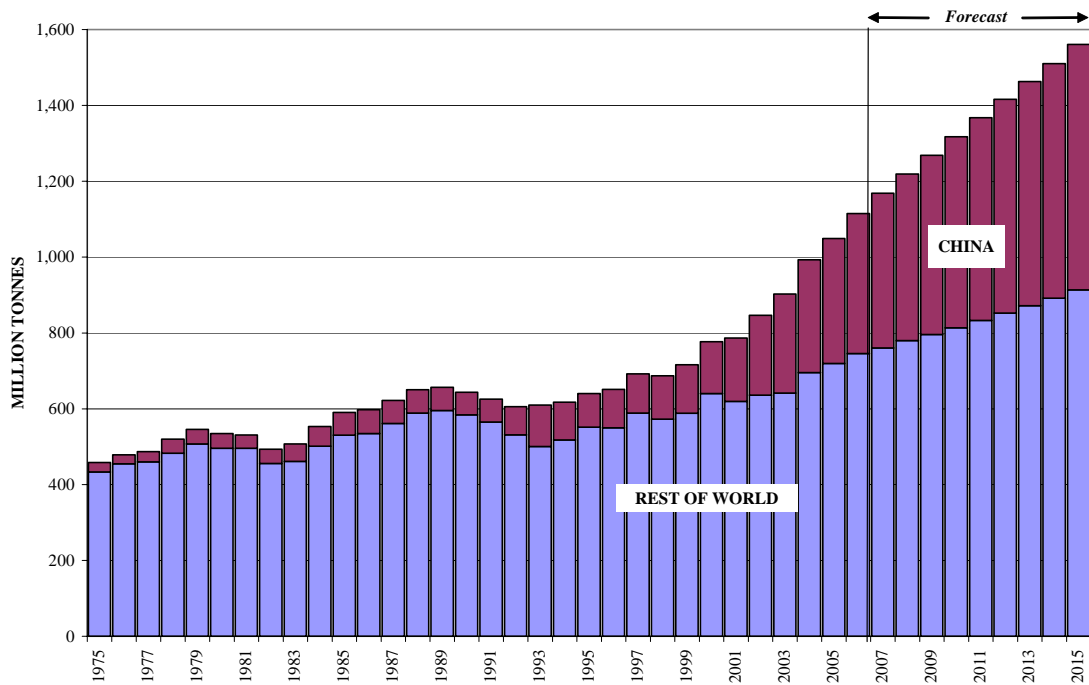
### **Overview**

The World steel industry continues to undergo dramatic changes as the forces of change are still intact. Developed World steelmaking capacity expansion generally will continue to lag as demand growth intensifies in the Pacific Basin; Developing World capacity will continue to expand, no more so, than in the Far East as the superheated Chinese economy impacts the region and in Latin America as the need for metallics intensifies; and the Communist World (China) capacity will continue in its expansion mode. The net result may be that the World steel producers (ex-China) achieve a better balance between supply and demand and, resultantly, operating rates may be higher over the cycle.

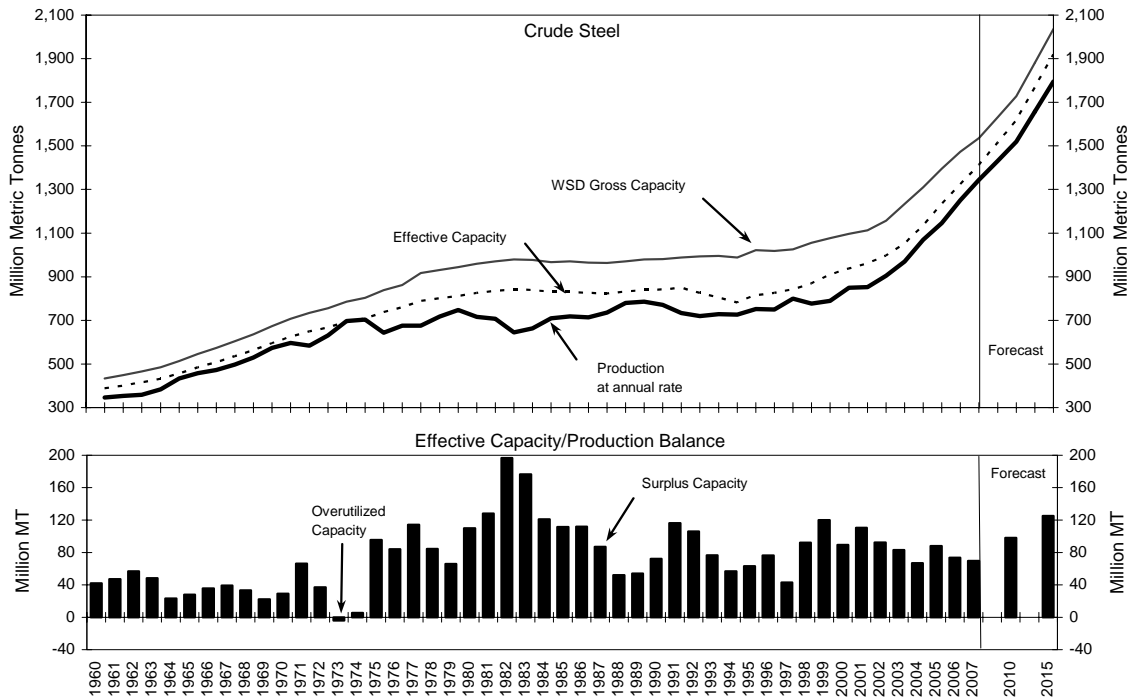
We look for global gross steelmaking capacity to rise 12% from 1.54 billion tonnes in 2007 to 1.73 billion tonnes in 2010 and to rise another 18% to 2.04 billion tonnes in 2015. Of the 501 million tonne rise from 2007 to 2015, the BOF process should rise by 38% or 376 million tonnes and the EAF process should rise by 30% or 152 million tonnes. The OH process is projected to be cut by 28 million tonnes to only the 7 million tonne level.

# WORLDSTEELDYNAMICS

*Exhibit C-1-1*  
Global Apparent Steel Consumption



*Exhibit C-1-2*  
WSD World Steelmaking Capacity vs. Production



# WORLDSTEELDYNAMICS

## Exhibit C-1-42

### Capacity Survey Summary by Region – Developed World

<b><u>DEVELOPED WORLD</u></b>		<b><u>2002</u></b>	<b><u>2003</u></b>	<b><u>2004</u></b>	<b><u>2005</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008E</u></b>	<b><u>2009E</u></b>	<b><u>2010E</u></b>
CRUDE STEEL	HIGH	537,718	546,765	572,669	588,286	590,814	613,925	625,304	630,551	653,851
	LOW							617,839	622,585	629,982
BOF	HIGH	314,198	320,163	336,198	341,286	339,756	355,143	361,643	361,871	366,732
	LOW							358,243	357,471	355,371
OH	HIGH	0	0	553	830	830	830	830	830	530
	LOW							830	830	530
EAF	HIGH	223,520	226,602	235,917	246,170	250,228	257,952	262,831	267,850	286,589
	LOW							258,766	264,284	274,081
CONTINUOUS CASTING	HIGH	499,503	509,068	530,484	544,174	538,367	555,733	568,462	577,182	597,196
	LOW							561,522	569,341	573,653
BF PIG IRON	HIGH	295,973	299,232	315,095	319,038	319,125	329,675	333,537	335,517	338,969
	LOW							329,240	330,220	327,220
BLAST FURNACES	HIGH	173	172	185	190	187	196	197	198	200
	LOW							192	191	189
DIRECT REDUCTION	HIGH	11,251	10,851	11,051	11,869	11,923	12,573	15,973	16,764	29,716
	LOW							12,573	12,964	14,416
<b><u>NORTH AMERICA</u></b>		<b><u>2002</u></b>	<b><u>2003</u></b>	<b><u>2004</u></b>	<b><u>2005</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008E</u></b>	<b><u>2009E</u></b>	<b><u>2010E</u></b>
<b>USA &amp; CANADA</b>										
CRUDE STEEL	HIGH	130,325	137,101	138,116	141,772	142,375	143,611	145,290	148,209	153,834
	LOW							144,609	147,527	150,249
BOF	HIGH	63,990	69,385	68,790	68,338	66,808	67,715	67,715	67,715	69,076
	LOW							67,715	67,715	67,715
EAF	HIGH	66,335	67,716	69,326	73,434	75,567	75,896	77,575	80,494	84,758
	LOW							76,894	79,812	82,534
CONTINUOUS CASTING	HIGH	120,736	128,160	129,998	134,256	134,253	134,699	136,453	139,312	144,971
	LOW							135,872	138,730	141,487
BF PIG IRON	HIGH	57,525	59,524	60,572	59,265	59,952	59,952	60,814	60,814	62,266
	LOW							59,914	59,914	59,914
BLAST FURNACES	HIGH	40	41	42	41	40	40	40	40	42
	LOW							39	39	39
DIRECT REDUCTION	HIGH	2,000	1,600	1,700	1,818	1,872	1,872	1,872	1,963	3,415
	LOW							1,872	1,963	3,415
<b><u>DEVELOPED ASIA</u></b>		<b><u>2002</u></b>	<b><u>2003</u></b>	<b><u>2004</u></b>	<b><u>2005</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008E</u></b>	<b><u>2009E</u></b>	<b><u>2010E</u></b>
<b>JAPAN, S. KOREA, TAIWAN &amp; OCEANIA</b>										
CRUDE STEEL	HIGH	211,159	211,139	213,499	214,539	215,689	218,629	226,529	230,857	247,807
	LOW							221,189	224,517	230,317
BOF	HIGH	139,918	139,618	141,318	142,218	143,268	145,818	151,518	153,846	158,946
	LOW							148,118	149,446	149,446
EAF	HIGH	71,241	71,521	72,181	72,321	72,421	72,811	75,011	77,011	88,861
	LOW							73,071	75,071	80,871
CONTINUOUS CASTING	HIGH	192,983	192,163	192,923	193,833	194,983	198,573	206,248	213,509	226,959
	LOW							201,333	207,794	209,694
BF PIG IRON	HIGH	135,680	134,880	134,675	135,410	135,610	135,610	138,610	141,590	146,590
	LOW							135,610	137,590	137,590
BLAST FURNACES	HIGH	57	55	54	54	54	54	55	57	59
	LOW							54	54	54
DIRECT REDUCTION	HIGH	8,456	8,456	8,556	9,256	9,256	9,256	11,156	11,856	23,356
	LOW							9,256	9,556	9,556

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# WORLD STEEL DYNAMICS

## *Chapter C-2 Global Steel Capacity/Production*

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# WORLD STEEL DYNAMICS

## *Chapter C-2 Global Steel Capacity/Production*

World gross surveyed steelmaking capacity reached a new high of 1,157 million tonnes in 2002 for an 18% increase above the previous peak capacity of 979 million tonnes reached twenty years earlier in 1982. Global steelmaking stagnated in the 1982 to 1994 period, as first the Developed World steelmakers and then the ex-USSR and Eastern European steelmakers restructured and downsized. In 1994, global capacity was up only 0.9% to 988 million tonnes. In the eight years to 2002, however, steelmaking capacity rebounded 17% to 1,157 million tonnes. This was followed by a more spectacular five year 32% rise to 1,531 million tonnes in 2007.

- In the 1994 to 2002 period, Developed World capacity rose 43% to 537 million tonnes, Developing World capacity rose only 4.7% to 381 million tonnes and Communist World (China) capacity rose 119% to 239 million tonnes. Note: The downsizing of the CIS/Eastern European steelmakers negatively impacted the Developing World figures.
- In the 2002 to 2007 period, Developed World capacity rose 14% to 614 million tonnes, Developing World capacity rose only 4.5% to 398 million tonnes and Communist World (China) capacity rose 119% to 523 million tonnes. Note: The Developed World growth rates are boosted by the expansion of the EU from 15 to 27 countries and, conversely, the Developing World growth rates are lowered.

The expansion of global steelmaking capacity between 2007 and 2010 has been largely forordained by the explosion of steelmakers' cash flows since 2003. The 177 million tonne spread between the low and high capacity figures for 2010 is mainly the result of the overwhelming number of projects proposed for Brazil and India. The 2010 low capacity survey figure is for an 11% rise to 1,697 million tonnes and the high capacity survey figure is for a 22% rise to 1,874 million tonnes.

- Developed World gross steelmaking capacity rose 19% or 98 million metric tonnes during the period from 1994 to 2007 from 516 million tonnes to 614 million tonnes. The recovery of USA steelmaking contributed to the growth of Developed World capacity but the expansion of the EU to 27 countries accounted for half the growth. For the 2007 to 2010 period, based on our just-completed survey the low forecast calls for a 3% or 16 million tonne rise to 630 million tonnes, while the high forecast calls for a 7% or 40 million tonne rise to 654 million tonnes. The Developed World share of World steelmaking capacity has fallen from 52% in 1977 to 40% in 2007.

# WORLD STEEL DYNAMICS

*Exhibit C-2-1*  
**“Surveyed” Gross Capacity Summary**  
*(million metric tonnes)*

<b>WORLD</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>
CRUDE STEEL	967,553	971,106	964,073	962,678	970,432	979,512	979,392	988,825	993,198
BOF	547,352	545,810	544,094	545,190	540,636	546,806	548,401	553,721	567,611
OH	177,510	174,834	164,164	161,488	165,529	165,029	154,539	147,239	127,995
EAF	242,691	250,462	255,815	256,000	264,267	267,677	276,452	287,865	297,592
CONTINUOUS CASTING	401,608	427,255	458,579	484,873	527,474	551,279	569,531	598,640	620,300
BF PIG IRON	669,317	668,780	663,024	658,913	671,398	674,649	663,889	659,484	658,219
BLAST FURNACES	1,289	1,281	1,243	1,203	1,160	1,158	1,120	1,097	1,086
DIRECT REDUCTION	21,451	23,611	26,336	27,457	27,696	29,776	33,351	35,781	37,961

<b>WORLD</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
CRUDE STEEL	995,578	988,136	1,022,239	1,017,466	1,035,570	1,055,665	1,076,349	1,097,021	1,113,722
BOF	572,541	567,181	591,716	581,783	598,847	612,636	631,488	646,118	660,315
OH	115,525	104,785	84,080	80,280	69,630	59,260	55,005	50,585	48,655
EAF	307,512	316,170	346,443	355,403	367,093	383,769	389,856	400,318	404,752
CONTINUOUS CASTING	643,369	659,868	744,105	764,891	808,364	841,532	875,725	909,329	935,093
BF PIG IRON	663,682	658,710	656,112	652,146	661,781	674,726	688,395	688,199	699,126
BLAST FURNACES	1,052	1,031	817	818	826	837	860	866	885
DIRECT REDUCTION	41,661	44,151	48,381	49,481	50,661	55,106	67,811	72,671	70,411

<b>WORLD</b>		<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008E</b>	<b>2009E</b>	<b>2010E</b>
CRUDE STEEL	HIGH	1,157,166	1,233,773	1,310,142	1,395,377	1,473,298	1,535,084	1,661,791	1,762,609	1,873,647
	LOW							1,571,728	1,642,534	1,697,386
BOF	HIGH	691,632	761,597	824,623	889,431	950,971	996,478	1,076,273	1,156,656	1,232,707
	LOW							1,025,378	1,087,466	1,132,516
OH	HIGH	48,835	46,425	43,045	39,275	35,850	34,625	33,365	30,855	28,635
	LOW							33,075	30,925	28,705
EAF	HIGH	416,699	425,751	442,474	466,671	486,477	503,981	552,153	575,098	612,305
	LOW							513,275	524,143	536,165
CONTINUOUS CASTING	HIGH	977,223	1,057,593	1,135,948	1,230,506	1,316,902	1,385,823	1,510,996	1,613,488	1,709,203
	LOW							1,435,762	1,503,596	1,549,633
BF PIG IRON	HIGH	748,189	809,158	873,121	936,361	1,005,363	1,040,801	1,133,913	1,210,743	1,279,445
	LOW							1,077,266	1,135,046	1,174,046
BLAST FURNACES	HIGH	931	971	1,036	1,064	1,082	1,081	1,131	1,165	1,184
	LOW							1,100	1,124	1,131
DIRECT REDUCTION	HIGH	70,491	70,091	72,731	73,549	75,863	82,678	101,478	108,899	130,031
	LOW							87,078	90,999	94,551

*Note: The use of the terms "low and high survey" refer to the surveyed figures representing the "pessimistic view" and "optimistic view" on announced capacity expansions.*

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# WORLD STEEL DYNAMICS

- Developing World gross steelmaking capacity rose 9% or 34 million metric tonnes from 364 million tonnes in 1994 to 398 million tonnes in 2007. Latin America and the Far East in this grouping, however, had an increase of 73% or 70 million tonnes. The joining of the EU by a number of the Eastern European countries lowered the overall number. For the 2007 to 2010 period, based on our survey, the low forecast calls for a 9% or 37 million tonne gain in capacity to 435 million tonnes, while the high forecast calls for a 41% or 165 million tonne gain to 563 million tonnes. The Developing World share of World steelmaking capacity has fallen from 37% in 1994 to 26% in 2007.

In the 1994-2007 period, the Far East added 48 million tonnes, Latin America 22 million tonnes and the Middle East 17 million tonnes, while the CIS/E. Europe figure was reduced by 57 million tonnes. The Far Eastern share of regional capacity rose from 11% in 1994 to 22% in 2007, the Latin American share rose from 16% to 20%, while the CIS/E. Europe share fell from 65% to 45%.

The Far East and Latin America have optimistic plans for continued expansion of their steelmaking capacity to 2010. They are projected to contribute 71% or 117 million tonnes of the high forecast capacity addition of 165 million tonnes. However, as we said above the overwhelming number of projects proposed for Brazil and India make the attainment of a number of these improbable.

- Communist World steelmaking capacity expanded five fold or 414 million metric tonnes from 109 million tonnes in 1994 to a peak of 523 million tonnes in 2007. China accounted for over 99% of this expansion. For the 2007 to 2010 period, the low end outlook calls for a 21% or 109 million tonne rise to 632 million tonnes, while the high outlook calls for a 25% or 133 million tonne rise to 656 million tonnes. The Communist World share of World steelmaking capacity has risen from 11% in 1994 to 34% in 2007.

Note: See Chapter C-3 for a more in-depth analysis of the survey results.

See Chapter C-4 for the detailed Developed World survey.

See Chapter C-5 for the detailed Developing World survey.

See Chapter C-6 for the detailed Communist World survey.

# WORLDSTEEL DYNAMICS

*Exhibit C-2-2*  
**“Most Likely Global Gross Crude Steel Capacity  
 Traditional Breakdown – 21<sup>st</sup> Century**  
*(million metric tonnes)*

	2000	2001	2002	2003	2004	2005	2006	2007	-----2010E-----		-2015E-	
	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>		<u>Most</u>	
									Low	High	<u>Likely</u>	
											<u>Likely</u>	
North America	147.0	140.8	130.3	137.1	138.1	141.8	142.4	143.6	150.2	153.8	147.5	153.8
Developed Asia	211.0	212.0	211.2	211.1	213.5	214.5	215.7	218.6	230.3	247.8	224.6	230.9
European Union	201.8	199.1	194.5	196.6	219.2	230.1	230.9	249.8	247.5	250.3	247.5	250.3
Other W. Europe	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1
<b>Developed World</b>	<b>561.6</b>	<b>553.6</b>	<b>537.7</b>	<b>546.8</b>	<b>572.7</b>	<b>588.3</b>	<b>590.8</b>	<b>613.9</b>	<b>630.0</b>	<b>653.9</b>	621.5	637.1
Latin America	66.1	66.9	68.9	69.4	70.9	73.6	76.7	79.0	83.2	114.3	97.8	127.5
Africa	18.8	18.9	19.0	19.0	19.0	19.4	20.5	20.5	21.1	24.7	21.1	24.7
Middle East	20.5	20.9	22.6	22.9	24.9	28.6	29.9	31.4	36.6	50.7	36.7	50.7
Far East	55.0	58.5	58.8	58.6	61.2	71.9	77.5	87.2	108.6	168.6	108.6	144.9
CIS/E. Europe	209.3	209.7	211.4	209.6	190.0	182.2	185.8	179.7	185.5	205.1	185.6	205.1
<b>Developing World</b>	<b>369.7</b>	<b>374.9</b>	<b>380.7</b>	<b>379.4</b>	<b>366.0</b>	<b>375.7</b>	<b>390.4</b>	<b>397.9</b>	<b>435.2</b>	<b>563.4</b>	<b>449.8</b>	<b>552.9</b>
China	160.4	179.9	233.4	302.2	366.0	425.6	486.0	516.7	624.7	638.3	638.3	822.3
Other Communist	5.2	5.3	5.3	5.3	5.4	5.8	6.1	6.6	7.6	18.1	18.1	23.5
<b>Communist World</b>	<b>165.7</b>	<b>185.2</b>	<b>238.7</b>	<b>307.6</b>	<b>371.5</b>	<b>431.4</b>	<b>492.1</b>	<b>523.3</b>	<b>632.2</b>	<b>656.3</b>	656.3	845.8
<b>World Total</b>	<b>1,097.0</b>	<b>1,113.7</b>	<b>1,157.2</b>	<b>1,233.8</b>	<b>1,310.1</b>	<b>1,395.4</b>	<b>1,473.3</b>	<b>1,535.1</b>	<b>1,697.4</b>	<b>1,873.6</b>	<b>1,727.6</b>	<b>2,035.8</b>
World excl. China	936.6	933.9	923.8	931.5	944.1	969.8	987.3	1,018.4	1,072.7	1,235.4	1,089.4	1,213.5

*Note: The use of the terms "low and high survey" refer to the surveyed figures representing the "pessimistic view" and "optimistic view" on announced capacity expansions.*

*North America includes: USA and Canada*

*Developed Asia includes: Japan, S. Korea, Taiwan & Oceania*

*European Union: EU-27 as of January 2007*

*Other Western Europe includes: Norway & Switzerland*

*CIS/E. Europe also includes: Turkey*

*Other Communist includes: N. Korea, Vietnam & Mongolia*

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# WORLD STEEL DYNAMICS

## *Chapter C-3* *Gross Steelmaking Capacity Survey Results*

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# WORLD STEEL DYNAMICS

## *Chapter C-3* *Gross Steelmaking Capacity Survey Results*

### **Gross Capacity Survey Results**

The results of our 2007 steelmaking capacity survey for the low-end and high-end forecasts to 2010 are summarized in Exhibit C-3-1. It should be noted that the capacity surveys are biased towards a more optimistic outlook that assumes all announced plans will go ahead, and that closures will be delayed as long as possible. Furthermore, steel company managements are vocal when making announcements about possible expansions, but are secretive about closure plans. Also, the survey does not include the potential for unannounced capacity additions.

The World capacity outlook to 2010 is for an 11% rise to 1,697 million tonnes for the surveyed low forecast and a 22% rise to 1,874 million tonnes for the surveyed high forecast from the 2007 figure of 1,535 million tonnes. Excluding China, the outlook is for a 5% rise for the low survey and a 21% rise for the high survey figures. In general, our expectation is that the Developed World steel industry should have only moderate growth, the Developing World steelmakers should have sizable expansion opportunities and the Communist World (Chinese) steel producers should continue to expand dramatically, albeit at a slower rate than the last few years.

- Developed World capacity is projected to rise 3% to 630 million tonnes for the low scenario and rise 7% to 654 million tonnes for the high scenario from 614 million tonnes in 2007. The USA, South Korea and Australia are expected to be the key areas for expansion. (See Chapter C-4.)
- Developing World capacity is projected to rise 9% to 435 million tonnes for the low scenario and rise 42% to 563 million tonnes for the high scenario from 398 million tonnes in 2007. The Far Eastern steelmakers are to be the main drivers here, followed by CIS, Middle Eastern and Latin American steelmakers. (See Chapter C-5.)
- Communist World capacity is projected to rise 21% to 632 million tonnes for the low scenario and rise 25% to 656 million tonnes for the high scenario from 523 million tonnes in 2007. China is by far the dominant factor here, although, Vietnam has plans for a sizable increase. (See Chapter C-6.)

The largest surveyed spreads in 2010 between the low and high scenarios are: Far East with 60 million tonnes, Latin America 31 million tonnes, CIS 20 million tonnes, Developed Asia 18 million tonnes, Middle East 14 million tonnes and China with 13 million tonnes.

# WORLD STEEL DYNAMICS

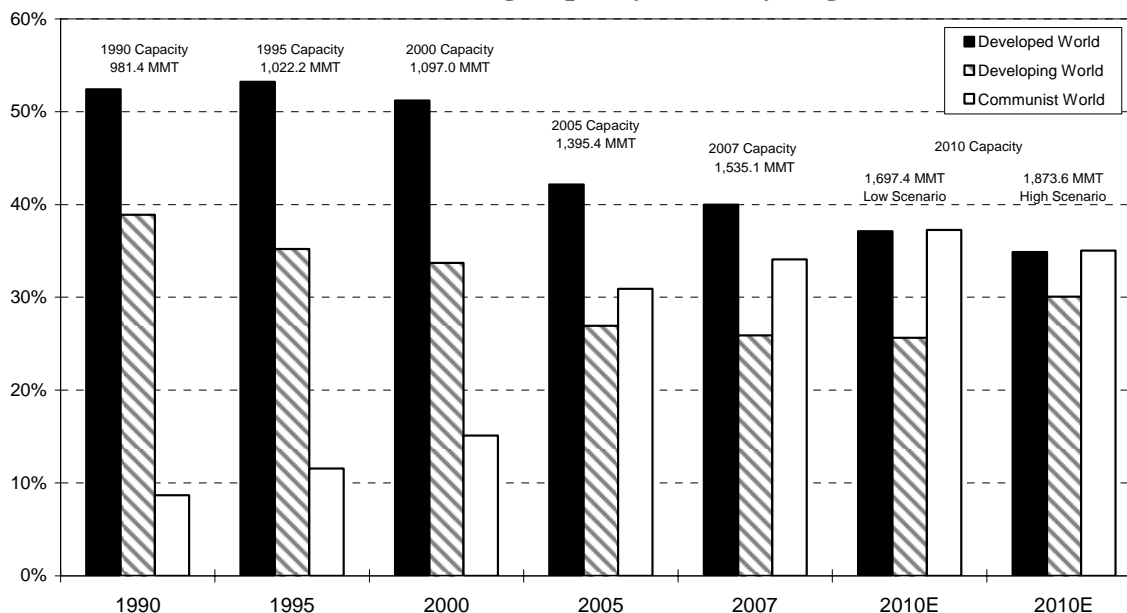
*Exhibit C-3-1*  
**World Surveyed Gross Crude Steel Capacity**  
*(million metric tonnes)*

By Region	1990	1995	2000	2005	2007	2010		Per Annum Growth Rate			
						Low	High	1990-2000		2000-2010	
								Low	High	Low	High
North America	129.5	133.5	147.0	141.8	143.6	150.2	153.8	1.3%	0.2%	0.5%	
Developed Asia	183.1	201.4	211.0	214.5	218.6	230.3	247.8	1.4%	0.9%	1.6%	
European Union	186.0	207.5	201.8	230.1	249.8	247.5	250.3	0.8%	2.1%	2.2%	
<b>Developed World</b>	<b>514.2</b>	<b>544.2</b>	<b>561.6</b>	<b>588.3</b>	<b>613.9</b>	<b>630.0</b>	<b>653.9</b>	<b>0.9%</b>	<b>1.2%</b>	<b>1.5%</b>	
Latin America	56.2	57.6	66.1	73.6	79.0	83.2	114.3	1.6%	2.3%	5.6%	
Africa	16.9	17.8	18.8	19.4	20.5	21.1	24.7	1.1%	1.2%	2.8%	
Middle East	9.2	15.4	20.5	28.6	31.4	36.6	50.7	8.4%	6.0%	9.5%	
Far East	29.2	42.9	55.0	71.9	87.2	108.6	168.6	6.6%	7.0%	11.9%	
CIS/Eastern Europe	270.5	226.3	209.3	182.2	179.7	185.5	205.1	-2.5%	-1.2%	-0.2%	
<b>Developing World</b>	<b>381.8</b>	<b>359.9</b>	<b>369.7</b>	<b>375.7</b>	<b>397.9</b>	<b>435.2</b>	<b>563.4</b>	<b>-0.3%</b>	<b>1.6%</b>	<b>4.3%</b>	
China	71.9	103.4	160.4	425.6	516.7	624.7	638.3	8.4%	14.6%	14.8%	
<b>Communist World</b>	<b>85.3</b>	<b>118.2</b>	<b>165.7</b>	<b>431.4</b>	<b>523.3</b>	<b>632.2</b>	<b>656.3</b>	<b>6.9%</b>	<b>14.3%</b>	<b>14.8%</b>	
<b>World Total</b>	<b>981.4</b>	<b>1,022.2</b>	<b>1,097.0</b>	<b>1,395.4</b>	<b>1,535.1</b>	<b>1,697.4</b>	<b>1,873.6</b>	<b>1.1%</b>	<b>4.5%</b>	<b>5.5%</b>	
World (ex-China)	909.5	918.9	936.6	969.8	1,018.4	1,072.7	1,235.4	0.3%	1.4%	2.8%	

Note: EU-12 prior to 1995, EU-15 prior to May 2004,  
 EU-25 prior Jan 2007, EU-27 post Jan 2007

The use of the terms "low and high survey" refer to the surveyed figures representing the "pessimistic view" and "optimistic view" on announced capacity expansions.

*Exhibit C-3-2*  
**Gross Steelmaking Capacity Share by Region**



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# WORLD STEEL DYNAMICS

With this report, we have reclassified the country breakdowns for the Developed World, Developing World and Communist World categories of the “Traditional Breakdown” to reflect the realities of the 21<sup>st</sup> Century. The new categorization is as follows:

## Developed World

- North America: United States, Canada
- Developed Asia: Japan, South Korea, Taiwan, Australia, New Zealand
- European Union: Belgium, Luxembourg, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, U.K., Austria, Finland, Sweden, Czech Republic, Hungary, Latvia, Poland, Slovakia, Slovenia, Bulgaria, Romania
- Other Western Europe: Norway, Switzerland

## Developing World

- Latin America: Brazil, Mexico, Argentina, Venezuela, Chile, Peru, Other Latin America
- Africa: South Africa, Algeria, Nigeria, Libya, Other Africa
- Middle East: Iran, Saudi Arabia, Egypt, Qatar, Iraq, Other Middle East
- Far East: India, Thailand, Malaysia, Indonesia, Philippines, Singapore, Pakistan, Bangladesh, Other Asia
- CIS/Eastern Europe: Russia, Ukraine, Kazakhstan, Azerbaijan, Moldova, Other CIS, Turkey, Serbia & Montenegro, Bosnia, Macedonia, Other E. Europe

## Communist World

- China
- North Korea, Vietnam, Mongolia

Historically, we concentrated on the Western World capacity figures versus the Communist World ones and on the Developed World versus Developing World data in the “traditional breakdown” of the 20<sup>th</sup> century. But as the Ex-Communist World countries impacted the world export market and China became such a dominant force, we started viewing the world more on a “global” and a “geographical breakdown” basis. Furthermore, as the comparisons of economic growth shifted from the Developed versus Developing World to the Atlantic versus Pacific Basin, we refocused our attention here to an “economic breakdown”. As we have now restored the viability of the traditional breakdown we are pleased to present the summarized results of the capacity survey in three categories for ease of use and for the benefit of the reader: (*Exhibit C-3-3*)

- |                        |   |
|------------------------|---|
| Traditional Breakdown  | - This is the historical industrial/political regional breakdown updated for the 21 <sup>st</sup> Century. ( <i>See page 3-27</i> ) |
| Economic Breakdown     | - This is the new versus old industrial/economic growth regional breakdown. ( <i>See page 3-57</i> )                                |
| Geographical Breakdown | - This is the popular way of grouping countries regionally. ( <i>See page 3-69</i> )  |

# WORLD STEEL DYNAMICS

## Developed World Crude Steel Capacity – Low Forecast Traditional Breakdown – 21<sup>st</sup> Century (thousand metric tonnes)

	2002	2003	2004	2005	2006	2007	2008E	2009E	2010E
U.S.A.	111,275	118,051	119,066	122,722	123,325	124,561	125,559	128,477	131,199
CANADA	19,050	19,050	19,050	19,050	19,050	19,050	19,050	19,050	19,050
<b>NORTH AMERICA</b>	<b>130,325</b>	<b>137,101</b>	<b>138,116</b>	<b>141,772</b>	<b>142,375</b>	<b>143,611</b>	<b>144,609</b>	<b>147,527</b>	<b>150,249</b>
JAPAN	131,503	131,203	131,403	131,803	131,803	131,803	131,803	134,581	134,581
SOUTH KOREA	51,370	51,650	52,310	52,850	53,350	55,690	57,650	57,650	63,050
TAIWAN	19,196	19,196	20,696	20,796	21,446	22,046	22,646	23,196	23,596
AUSTRALIA	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
NEW ZEALAND	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090
<b>DEVELOPED ASIA</b>	<b>211,159</b>	<b>211,139</b>	<b>213,499</b>	<b>214,539</b>	<b>215,689</b>	<b>218,629</b>	<b>221,189</b>	<b>224,517</b>	<b>230,317</b>
BELGIUM	12,650	12,850	13,150	13,160	13,210	14,110	14,110	13,410	12,710
DENMARK	400	0	0	0	0	0	0	0	0
FRANCE	25,094	25,144	24,929	24,914	24,914	24,914	25,414	24,014	22,614
GERMANY	50,940	50,940	50,940	50,040	49,555	49,505	49,061	49,061	49,061
GREECE	3,250	3,250	3,300	3,350	3,350	3,350	3,350	3,350	3,350
IRELAND	0	0	0	0	0	0	0	0	0
ITALY	37,645	37,956	37,956	36,256	36,306	36,606	36,606	36,606	36,606
LUXEMBOURG	3,650	3,650	3,650	3,650	3,810	3,810	3,810	3,810	3,810
NETHERLANDS	6,790	6,790	6,990	7,160	7,160	7,160	7,160	7,160	7,160
PORTUGAL	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
SPAIN	20,067	20,567	21,367	22,067	22,067	22,952	22,952	23,552	23,552
UK	16,208	16,668	16,736	17,750	18,250	18,780	19,080	19,080	19,080
AUSTRIA	5,655	6,275	6,405	7,205	7,705	7,705	7,705	7,705	7,705
FINLAND	4,220	4,690	5,180	5,530	5,530	5,530	5,530	5,530	5,530
SWEDEN	6,515	6,445	6,265	6,265	6,265	6,265	6,265	6,265	6,440
LATVIA			367	550	550	550	550	550	550
POLAND			9,303	13,955	13,955	13,955	13,955	13,955	14,755
CZECH REPUBLIC			5,433	8,150	8,150	8,150	8,150	8,150	8,150
SLOVAKIA			3,467	5,200	5,200	5,200	5,200	5,200	5,200
HUNGARY			1,867	2,800	2,800	2,800	2,800	2,800	2,800
SLOVENIA			449	673	673	673	673	673	673
BULGARIA						3,170	3,170	3,170	3,170
ROMANIA						13,200	13,200	13,200	13,200
<b>EUROPEAN UNION</b>	<b>194,484</b>	<b>196,625</b>	<b>219,153</b>	<b>230,075</b>	<b>230,850</b>	<b>249,785</b>	<b>250,141</b>	<b>248,641</b>	<b>247,516</b>
NORWAY	600	750	750	750	750	750	750	750	750
SWITZERLAND	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150
<b>OTHER WESTERN EUROPE</b>	<b>1,750</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>
<b>DEVELOPED WORLD</b>	<b>537,718</b>	<b>546,765</b>	<b>572,669</b>	<b>588,286</b>	<b>590,814</b>	<b>613,925</b>	<b>617,839</b>	<b>622,585</b>	<b>629,982</b>

Note: EU-15 prior to May 2004, EU-25 prior to Jan. 2007, EU-27 post Jan. 2007

# WORLD STEEL DYNAMICS

## Developed World Crude Steel Capacity – High Forecast Traditional Breakdown – 21<sup>st</sup> Century (thousand metric tonnes)

	2002	2003	2004	2005	2006	2007	2008E	2009E	2010E
U.S.A.	111,275	118,051	119,066	122,722	123,325	124,561	126,240	129,159	134,784
CANADA	19,050	19,050	19,050	19,050	19,050	19,050	19,050	19,050	19,050
<b>NORTH AMERICA</b>	<b>130,325</b>	<b>137,101</b>	<b>138,116</b>	<b>141,772</b>	<b>142,375</b>	<b>143,611</b>	<b>145,290</b>	<b>148,209</b>	<b>153,834</b>
JAPAN	131,503	131,203	131,403	131,803	131,803	131,803	131,803	134,581	134,581
SOUTH KOREA	51,370	51,650	52,310	52,850	53,350	55,690	57,650	57,650	66,550
TAIWAN	19,196	19,196	20,696	20,796	21,446	22,046	27,746	29,296	30,896
AUSTRALIA	8,000	8,000	8,000	8,000	8,000	8,000	8,240	8,240	14,690
NEW ZEALAND	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090
<b>DEVELOPED ASIA</b>	<b>211,159</b>	<b>211,139</b>	<b>213,499</b>	<b>214,539</b>	<b>215,689</b>	<b>218,629</b>	<b>226,529</b>	<b>230,857</b>	<b>247,807</b>
BELGIUM	12,650	12,850	13,150	13,160	13,210	14,110	14,110	13,410	13,360
DENMARK	400	0	0	0	0	0	0	0	0
FRANCE	25,094	25,144	24,929	24,914	24,914	24,914	25,414	24,014	22,614
GERMANY	50,940	50,940	50,940	50,040	49,555	49,505	49,605	49,705	49,805
GREECE	3,250	3,250	3,300	3,350	3,350	3,350	3,350	3,350	3,750
IRELAND	0	0	0	0	0	0	0	0	0
ITALY	37,645	37,956	37,956	36,256	36,306	36,606	36,606	36,606	36,606
LUXEMBOURG	3,650	3,650	3,650	3,650	3,810	3,810	3,810	3,810	3,810
NETHERLANDS	6,790	6,790	6,990	7,160	7,160	7,160	7,160	7,160	7,160
PORTUGAL	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
SPAIN	20,067	20,567	21,367	22,067	22,067	22,952	23,552	23,552	23,552
UK	16,208	16,668	16,736	17,750	18,250	18,780	19,080	19,080	19,780
AUSTRIA	5,655	6,275	6,405	7,205	7,705	7,705	7,705	7,705	7,705
FINLAND	4,220	4,690	5,180	5,530	5,530	5,530	5,530	5,530	5,530
SWEDEN	6,515	6,445	6,265	6,265	6,265	6,265	6,265	6,265	6,440
LATVIA			367	550	550	550	550	550	550
POLAND			9,303	13,955	13,955	13,955	14,255	14,255	15,055
CZECH REPUBLIC			5,433	8,150	8,150	8,150	8,150	8,150	8,150
SLOVAKIA			3,467	5,200	5,200	5,200	5,200	5,200	5,200
HUNGARY			1,867	2,800	2,800	2,800	2,800	2,800	2,800
SLOVENIA			449	673	673	673	673	673	673
BULGARIA						3,170	3,170	3,170	3,170
ROMANIA						13,200	13,200	13,200	13,200
<b>EUROPEAN UNION</b>	<b>194,484</b>	<b>196,625</b>	<b>219,153</b>	<b>230,075</b>	<b>230,850</b>	<b>249,785</b>	<b>251,585</b>	<b>249,585</b>	<b>250,310</b>
NORWAY	600	750	750	750	750	750	750	750	750
SWITZERLAND	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150
<b>OTHER WESTERN EUROPE</b>	<b>1,750</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>	<b>1,900</b>
<b>DEVELOPED WORLD</b>	<b>537,718</b>	<b>546,765</b>	<b>572,669</b>	<b>588,286</b>	<b>590,814</b>	<b>613,925</b>	<b>625,304</b>	<b>630,551</b>	<b>653,851</b>

Note: EU-15 prior to May 2004, EU-25 prior to Jan. 2007, EU-27 post Jan. 2007

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# WORLD STEEL DYNAMICS

## *Chapter C-4* *Developed World Steelmaking Capacity*

<b>Capacity Survey by Plant</b>	<b>Page</b>
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Canada	4-16
Developed Asia	
Japan	4-21
South Korea	4-29
Taiwan	4-31
Australia	4-33
New Zealand	4-35
European Union	
Austria	4-39
Bulgaria	4-40
Belgium	4-41
Czech Republic	4-43
Denmark	4-44
Finland	4-45
France	4-46
Germany	4-49
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Hungary	4-54
Ireland	4-55
Italy	4-56
Latvia	4-61
Luxembourg	4-62
Netherlands	4-63
Poland	4-64
Portugal	4-66
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Slovakia	4-69
Slovenia	4-70
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United Kingdom	4-76
Other Western Europe	
Norway	4-81
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# WORLDSTEELDYNAMICS

## USA CAPACITY IN THOUSAND TONNES

		<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
<u>USA TOTAL</u>										
CRUDE STEEL	High	111,275	118,051	119,066	122,722	123,325	124,561	126,240	129,159	134,784
	Low							125,559	128,477	131,199
BOF	High	53,290	58,685	58,090	57,638	56,108	57,015	57,015	57,015	58,376
	Low							57,015	57,015	57,015
EAF	High	57,985	59,366	60,976	65,084	67,217	67,546	69,225	72,144	76,408
	Low							68,544	71,462	74,184
CONTINUOUS CASTING	High	101,911	109,335	111,173	115,431	115,428	115,874	117,628	120,487	126,146
	Low							117,047	119,905	122,662
PIG IRON	High	46,150	48,149	49,197	47,890	48,577	48,577	49,439	49,439	50,891
	Low							48,539	48,539	48,539
BLAST FURNACES	High	31	32	33	32	31	31	31	31	33
	Low							30	30	30
DIRECT REDUCTION	High	400	0	100	218	272	272	272	363	1,815
	Low							272	363	1,815
<u>CRUDE STEEL</u>										
INTEGRATED COS TOTAL	High	54,450	59,870	61,145	61,060	59,943	61,001	60,850	61,229	62,590
	Low							60,850	61,229	61,229
BOF	High	50,400	55,795	56,452	54,748	53,218	54,125	54,125	54,125	55,486
	Low							54,125	54,125	54,125
EAF	High	4,050	4,075	4,693	6,312	6,725	6,876	6,725	7,104	7,104
	Low							6,725	7,104	7,104
ACME STEEL BOF (1)		0								
AK STEEL TOTAL		6,200	6,265	6,265	6,328	6,470	6,470	6,470	6,849	6,849
ASHLAND BOF		2,200	2,223	2,223	2,245	2,268	2,268	2,268	2,268	2,268
MIDDLETOWN BOF		2,500	2,517	2,517	2,540	2,540	2,540	2,540	2,540	2,540
BUTLER EAF (2)		800	817	817	817	936	936	936	1,315	1,315
MANSFIELD EAF (2)		700	708	708	726	726	726	726	726	726
BETHLEHEM STEEL TOTAL (3)		10,900	3,632							
BURNS HARBOR BOF		5,200	1,733							
SPARROWS POINT BOF		3,700	1,233							
BETHLEHEM BOF										
BETHLEHEM EAF										
PST, STEELTON EAF		1,000	333							
LUKENS PLATE EAF (4)		1,000	333							
GENEVA STEEL BOF		0								
ISG TOTAL (5) (7)		1,700	14,323	20,462	7,095					
BOF		1,700	12,989	18,162	6,209					
EAF		0	1,334	2,300	886					
CLEVELAND WEST BOF		0	0	907	405					
INDIANA HARBOR BOF		1,000	3,755	3,755	1,130					
CLEVELAND EAST BOF		700	2,600	2,600	780					
BURNS HARBOR BOF (3)			3,467	5,200	1,565					
SPARROWS POINT BOF (3)			2,467	3,700	1,110					
PST, STEELTON EAF (3)			667	1,000	307					
LUKENS PLATE EAF (3)			667	1,000	307					
ACME STEEL BOF (1)			700	1,000	307					
WEIRTON BOF (6)				1,000	912					
GEORGETOWN EAF (18)				300	272					

# WORLDSTEEL DYNAMICS

## USA CAPACITY IN THOUSAND TONNES

	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	
ISPAT INLAND TOTAL (7)	5,650	5,650	5,650							
BOF	5,100	5,100	5,100							
EAF	550	550	550							
MAGNITOGORSK, OHIO BOF (51)									1,361	
High									0	
Low										
MITTAL STEEL USA TOTAL (7)				20,526	26,212	27,119	27,119	27,119	27,119	
BOF				17,913	22,782	23,689	23,689	23,689	23,689	
EAF				2,613	3,430	3,430	3,430	3,430	3,430	
BURNS HARBOR BOF				3,651	5,262	5,262	5,262	5,262	5,262	
CLEVELAND EAST BOF				1,820	3,084	3,084	3,084	3,084	3,084	
WEST BOF				945	945	945	945	945	945	
COATESVILLE EAF				714	930	930	930	930	930	
GEORGETOWN EAF				635	907	907	907	907	907	
INDIANA HARBOR BOF				6,936	8,865	9,772	9,772	9,772	9,772	
EAF				550	550	550	550	550	550	
RIVERDALE BOF				907	907	907	907	907	907	
SPARROWS POINT BOF (52)				2,590	3,719	3,719	3,719	3,719	3,719	
STEELTON EAF				714	1,043	1,043	1,043	1,043	1,043	
WEIRTON BOF				1,064	0					
NATIONAL STEEL TOTAL (8)	6,450	2,150								
GRANITE CITY BOF	2,800	933								
GREAT LAKES BOF	3,650	1,217								
SEVERSTAL NA TOTAL (9)	3,500	3,500	3,500	3,538	3,538	3,538	3,538	3,538	3,538	
BOF	3,500	3,500	3,500	3,538	3,538	3,538	3,538	3,538	3,538	
EAF										
US STEEL TOTAL	12,850	17,150	19,300	19,355	19,505	19,656	19,505	19,505	19,505	
MON VALLEY BOF	2,650	2,650	2,650	2,676	2,722	2,722	2,722	2,722	2,722	
FAIRFIELD BOF	2,700	2,700	2,700	2,722	2,767	2,767	2,767	2,767	2,767	
GARY BOF	7,500	7,500	7,500	7,507	7,530	7,530	7,530	7,530	7,530	
GRANITE CITY BOF (8)		1,867	2,800	2,800	2,812	2,812	2,812	2,812	2,812	
GREAT LAKES BOF (8)		2,433	3,650	3,650	3,674	3,674	3,674	3,674	3,674	
LONE STAR EAF (45)						151	0	0	0	
USS/KOBE STEEL, LORAIN BOF (10)										
WCI, WARREN BOF	1,650	1,650	1,650	1,678	1,678	1,678	1,678	1,678	1,678	
WEIRTON BOF (6)	3,000	3,000	2,000							
ESMARK TOTAL (44)	2,550	2,550	2,318	2,540	2,540	2,540	2,540	2,540	2,540	
WHEELING-PITTS. BOF	2,550	2,550	2,000	1,270	907	907	907	907	907	
EAF (11)			318	1,270	1,633	1,633	1,633	1,633	1,633	
<u>CRUDE STEEL</u>										
MINI-MILLS TOTAL EAF	High	48,175	50,731	50,623	52,562	54,282	54,504	57,286	59,600	62,957
Low								56,605	58,918	60,733
ALTON STEEL (12)			300	600	720	720	720	720	720	720
ARKANSAS STEEL ASSOC.		230	230	230	236	250	250	250	250	250
BAYOU STEEL		700	700	700	700	700	700	700	700	700
BETA STEEL		0	400	635	635	817	817	817	817	817

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