

EAF Metallics

(Or Birds, Chevies, Virgins, and Pigs)

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World EAF Metallics Balance

	2009	2010	2015	2020
<i>Metallics requirements</i>				
Steel production	1,227.0	1,414.0	1,639.2	1952.7
EAF production	344.8	430.2	526.4	662.4
(%)	(28.1%)	(30.4%)	(32.1%)	(33.9%)
EAF metallics required	379.2	473.2	579.0	728.6
<i>Metallics sources</i>				
Captive DRI	50.6	56.3	91.1	113.2
Merchant DRI/HBI	<u>9.8</u>	<u>11.9</u>	<u>11.1</u>	<u>10.7</u>
Total DRI	60.4	68.2	102.2	123.9
(% EAF charge)	(15.9%)	(14.4%)	(17.7%)	(17.0%)
Domestic pig iron	15.0	16.1	19.8	21.5
International pig iron	6.9	6.5	8.3	10.4
Hot metal	13.2	15.3	17.7	21.1
Scrap	283.7	367.1	431.0	551.8

Step 1

	2009	2010
<i>Metallics requirements</i>		
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Scrap	283.7	367.1

Compile previous years' figures using following sources and methodology:

- World steel and EAF production – Worldsteel Association
- EAF metallics required – EAF production X 1.1 (assumes 90% yield of metallics to steel)
- DRI/HBI production – Midrex calculations
- International pig iron production – Worldsteel Association and C. Barrington (60% EAF)
- Domestic pig iron production – C. Barrington (mostly China)
- Hot metal – Midrex estimates (mostly China)
- Scrap – by difference

Step 2

	2009	2010	2015	2020
<i>Metallics requirements</i>				
Steel production	1,227.0	1,414.0	1,639.2	1952.7
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(%)	(28.1%)	(30.4%)	(32.1%)	(33.9%)
EAF metallics required	379.2	473.2	579.0	728.6

Forecast future figures using following sources and methodology:

- World steel and EAF production – Midrex forecasts taking into account consultant figures
- EAF metallics required – EAF production X 1.1 (assumes 90% yield of metallics to steel)



Step 3

	2009	2010	2015	2020
<i>Metallics sources</i>				
Captive DRI	50.6	56.3	91.1	113.2
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Hot metal	13.2	15.3	17.7	21.1
Scrap	283.7	367.1	431.0	551.8

Forecast future figures using following sources and methodology:

- DRI/HBI production – Midrex calculations for existing plants and projections
- International pig iron production – Midrex forecasts (includes ITmk3[®] nuggets)
- Domestic pig iron production – Midrex forecasts (includes ITmk3[®] nuggets)
- Hot metal – Midrex forecasts
- Scrap – by difference

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Assumptions and Conclusions

- World steel production continues to expand, driven by emerging market economic growth – BRICs, SE Asia, MENA. Assumes China reaches 842 Mt by 2020 and rest of world grows at 3-4%/yr.
- Most new capacity outside China will be EAF based
- Big increase in metallics required for EAFs: 255 Mt by 2020
- Total DRI production will double due to need for DRI in EAFs. Two markets: EAF feed for construction products in developing countries, EAF scrap supplement for low residual products in industrialized countries.
- DRI will represent 17% of EAF feed by 2015, up from 14% in 2010
- Merchant DRI/HBI will grow in total, but most increase will be for blast furnace and BOF use. Merchant EAF use will be flat because of closure of India rotary kilns for environmental reasons.
- Pig iron and hot metal use in EAFs will grow slowly because of difficult economics of merchant iron business
- Much pressure on scrap supplies: 185 Mt increase by 2020 – is this achievable?

Thank you

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