

Green Steel: Decarbonising a Hard-to-abate Sector

Understanding Steel Production - Massimo Ferrari









A photograph of several white offshore wind turbines in a row, extending into the blue ocean under a clear blue sky. The turbines are mounted on yellow and white support structures. The text is overlaid on the left side of the image.

Steel
production
accounts for
7% of global
CO₂
emissions

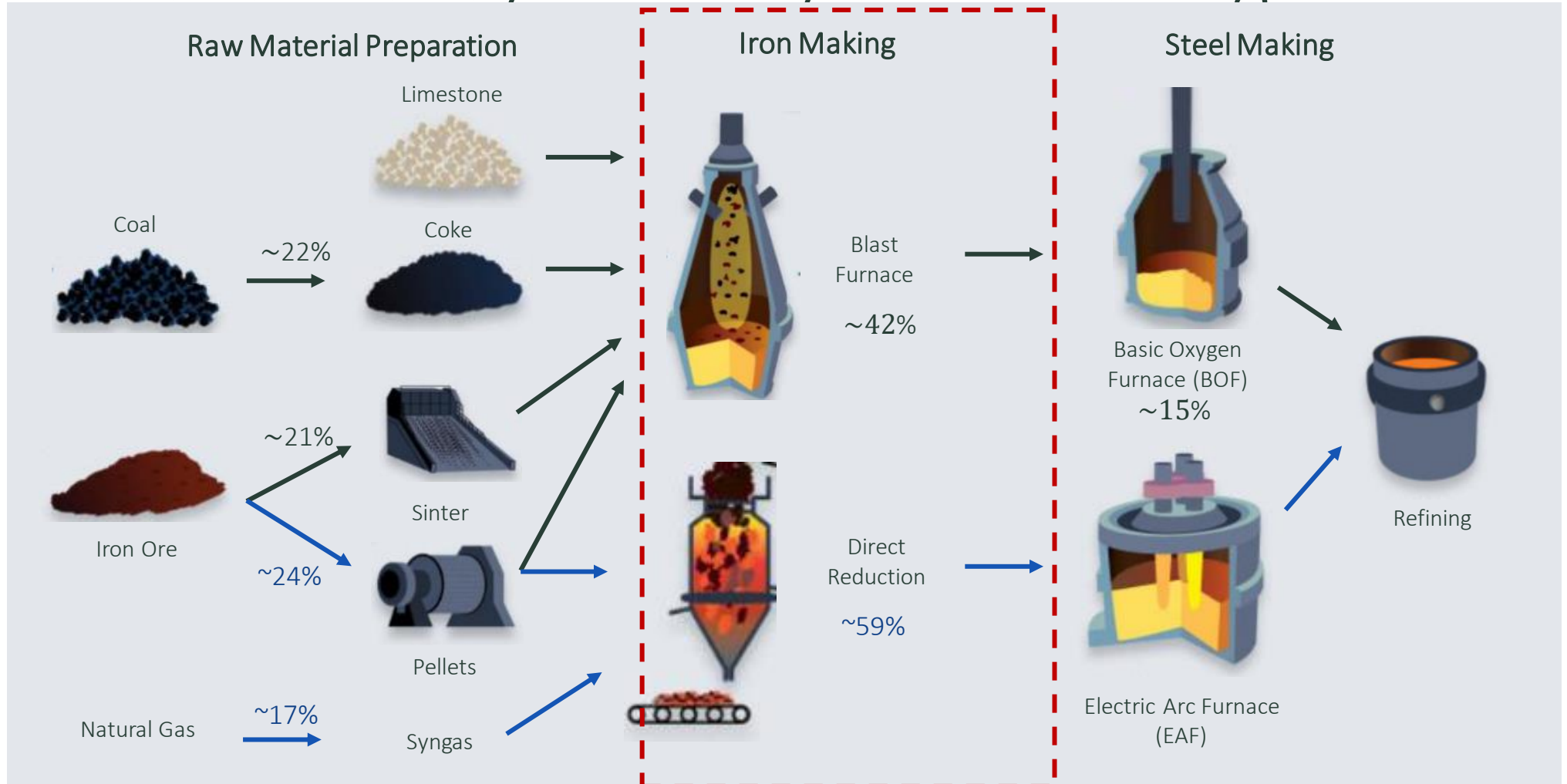
Steel Production Today: Primary Steel Making

Blast Furnace-Basic Oxygen Furnace (BF-BOF)

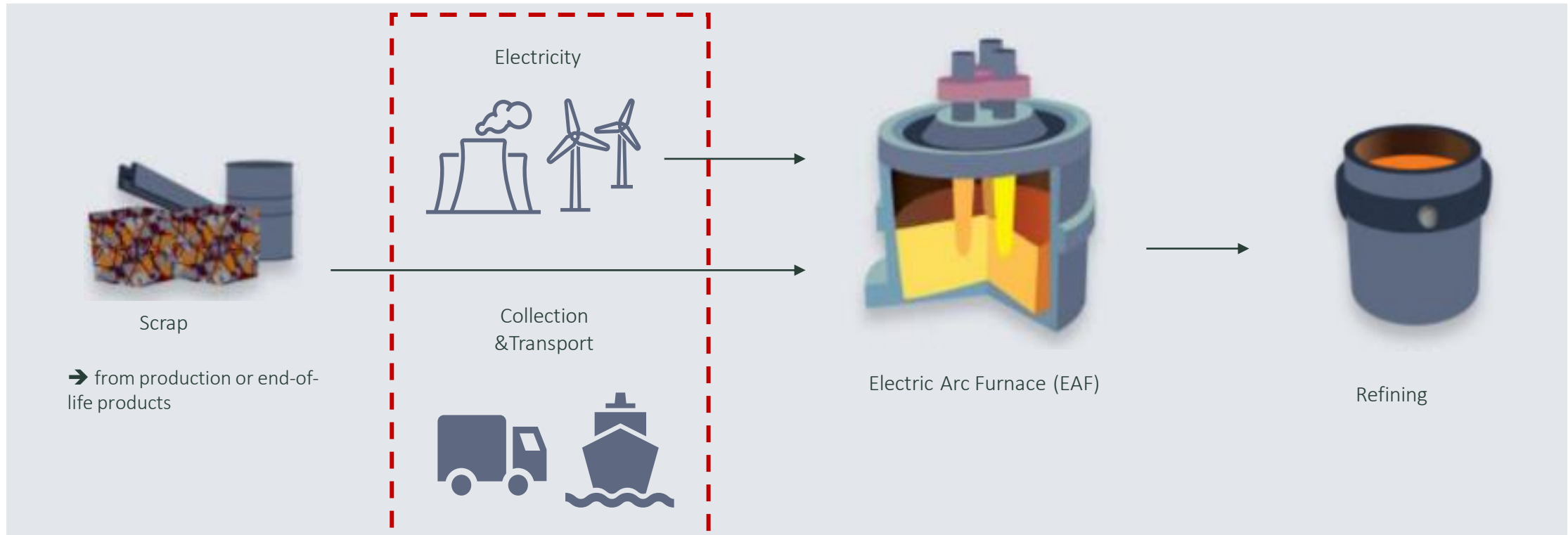
Scope 1+2
~2.5 tCO₂/t

Direct reduction-Electric Arc Furnace (DRI-EAF)

Scope 1+2
~0.5 tCO₂/t



Steel Production Today: Secondary Steel Making

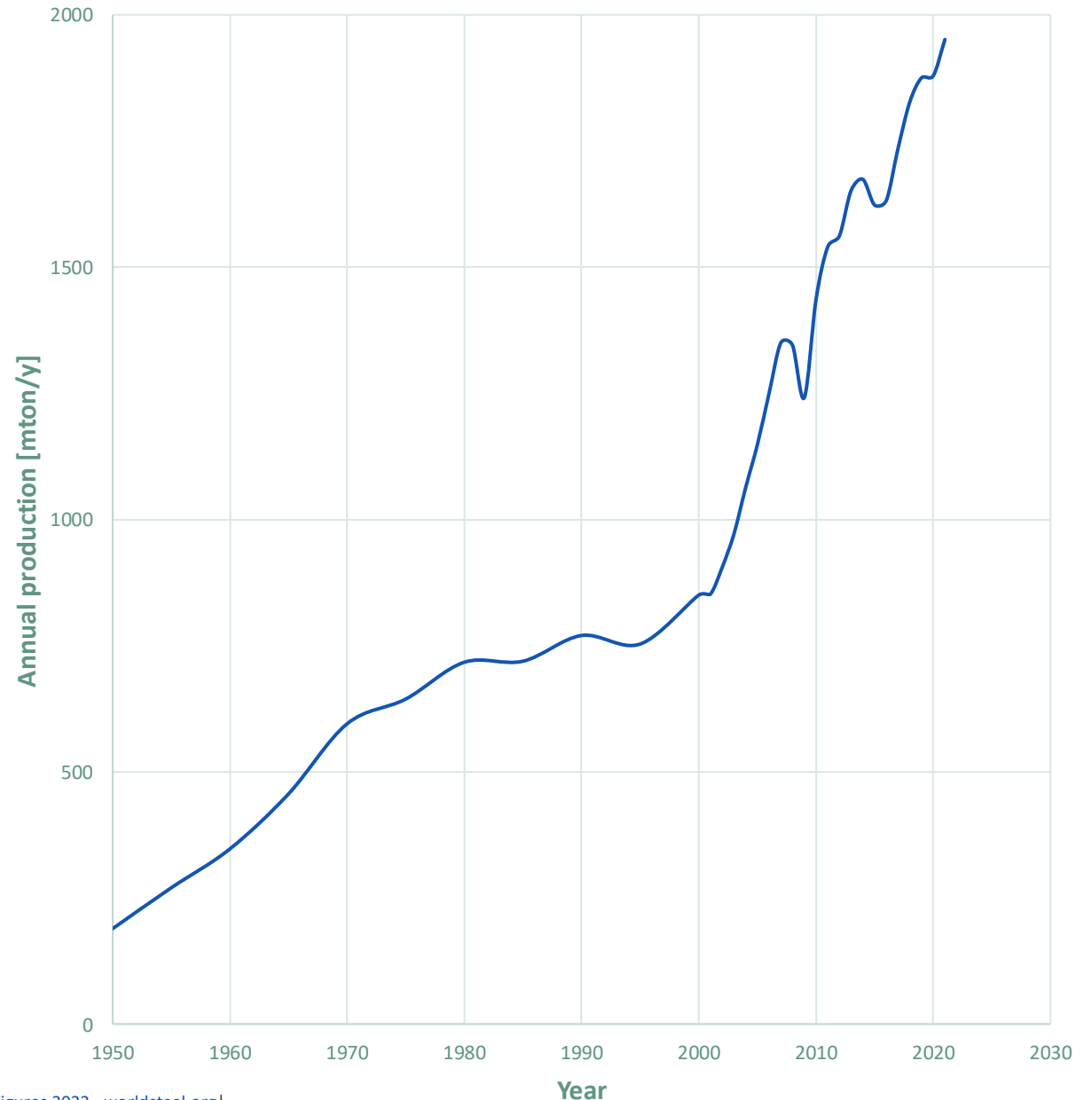


Secondary route (EAF)

Scope 1+2
~0.3 tCO₂/t

Yearly steel production

- GHG-intensity of the steel production decreased approx. 65% since the beginning of the 20th century, but it is stagnant in the last 25y
- Massive increase in the steel production in the same period
- Resulting that 50% of the absolute emission of the industry happened in the recent years.

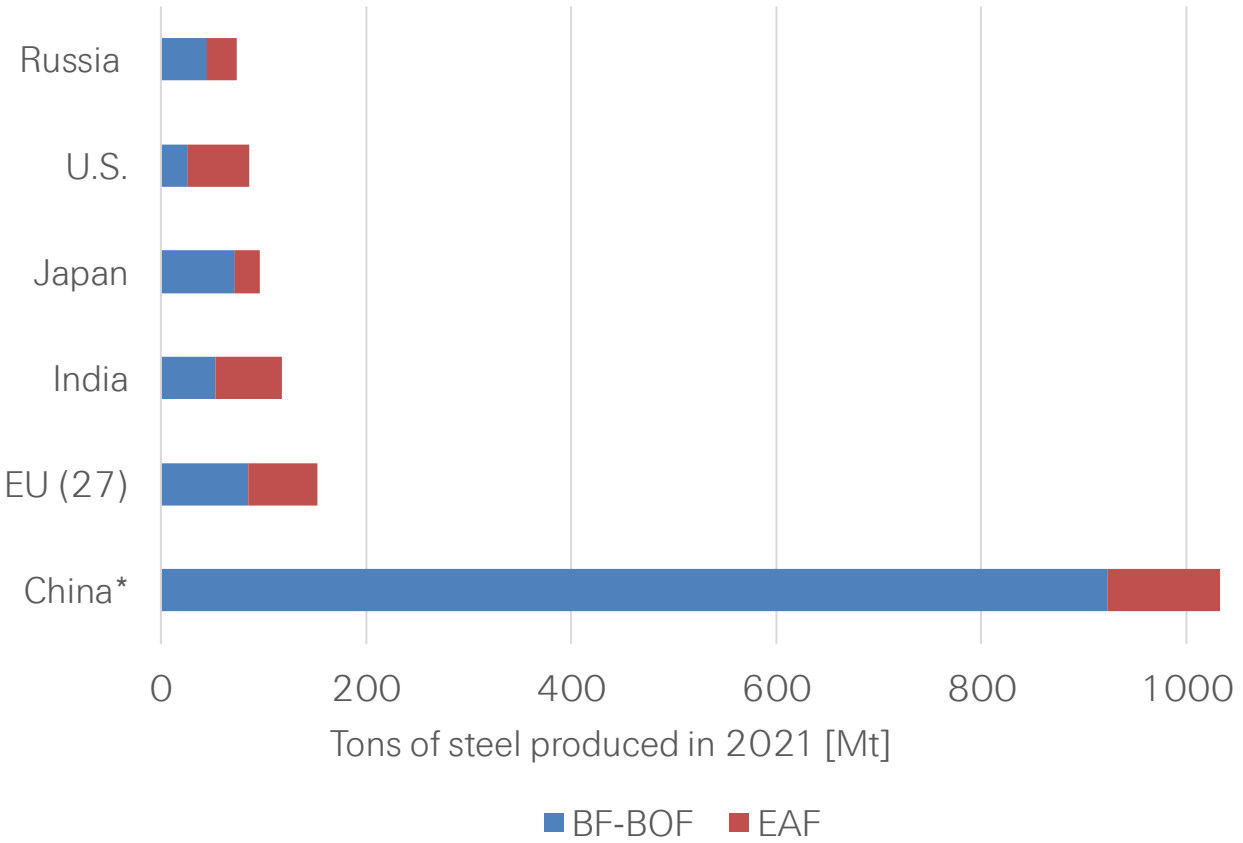


(Source: [World Steel in Figures 2022 - worldsteel.org](https://www.worldsteel.org/))

Top steel producing countries and production routes (2021)

- Steel production concentrated in China (>50%) and mainly BF primary route
- Followed by India and EU27 that have more balanced primary/secondary route split

Top steel producing countries and production routes, 2021



(Source: [World Steel in Figures 2022 - worldsteel.org](https://worldsteel.org))

How to achieve the decarbonization of the steel industry?

Regulation
and fundings

Availability of
emission free
energy

New
technologies
and supply
chain



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