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The way from BOF to EAF? Investigations and decisions to be done

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A fully comprehensive process transformation from a conventional integrated steel mill with blast furnace and converter to a modern electric steel mill with the aim of drastically reducing CO₂ emissions involves many dangers and requires a precise weighing of all possible solution variants, including their effects on both productivity and the steel grades to be produced.

This article describes examples and solutions of one of several possible transformation variants for integrated steel mills: the implementation of an electric arc furnace.

Various considerations and challenges are shown, such as: Maintaining the tapping weight, is the necessary electrical connected load available or is the given grid stability sufficient and what solutions are there if not, are the space conditions in a plant that has grown over decades sufficient or suitable for the integration of new reduction and melting units, what will the raw material situation look like in 10 or 20 years? years?

What is possible with an electric arc furnace? Is it possible to produce the steel grades to be produced with an electric arc furnace as a melting unit and does this change productivity? Can existing equipment be reused in secondary metallurgy or do investments also have to be made here?

All these questions and challenges are also explained and described in this article using existing reference examples.

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