Design of clean steel with Hydrogen

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The iron and steel industry is responsible for a portion of 7-9 % of the global CO2 emissions, it has to reduce its CO2 emissions drastically during the next 30 years. Greater CO2 reductions in steel industry can only be achieved by switching to different iron & steel production processes. This can be either the scrap-EAF route for certain quality grade steels or the utilization of H2 in Iron direct reduction route. The use of hydrogen sources in the existing BF-BOF route can only contribute to a small reduction of CO2 emissions, which it will not be sufficient to achieve the CO2 reduction targets. In order to achieve the future targets, the direct reduction plant (DRI/EAF route) using H2 is one of the alternatives for CO2 reduction strategy. This study analyses the environmental benefits of the hydrogen based direct reduction process and its impact on operational cost based on average unit cost for a DRI.

Hydrogen path in steel Direct Reduction Iron DRI