

Prospects for DRI Production & Demand in Arab Countries

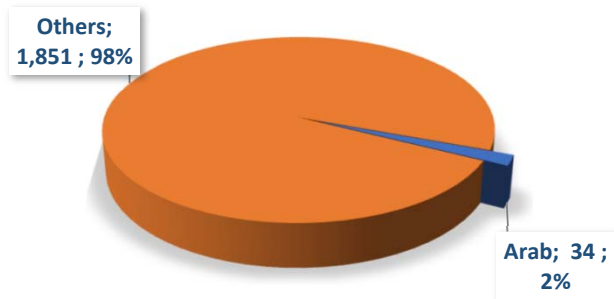
El Sayed Ibrahim- Ezz Steel
16th Arab Steel Summit- Cairo
• 29-30 October 2023



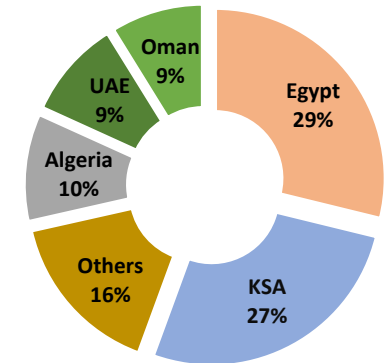
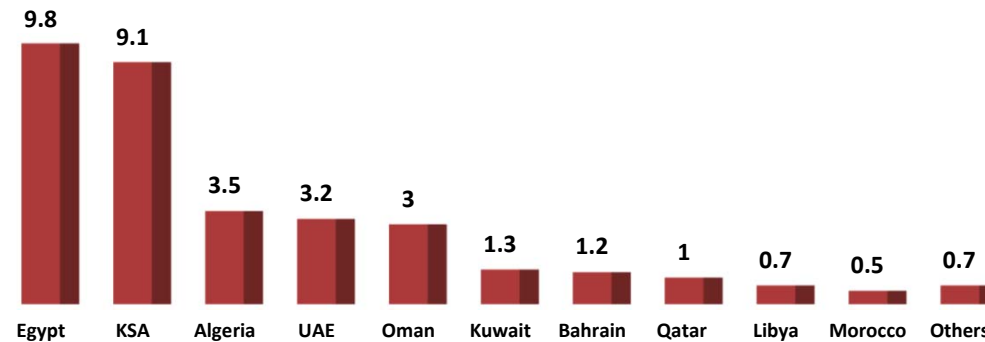
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Arab Countries Crude Steel and DRI Production

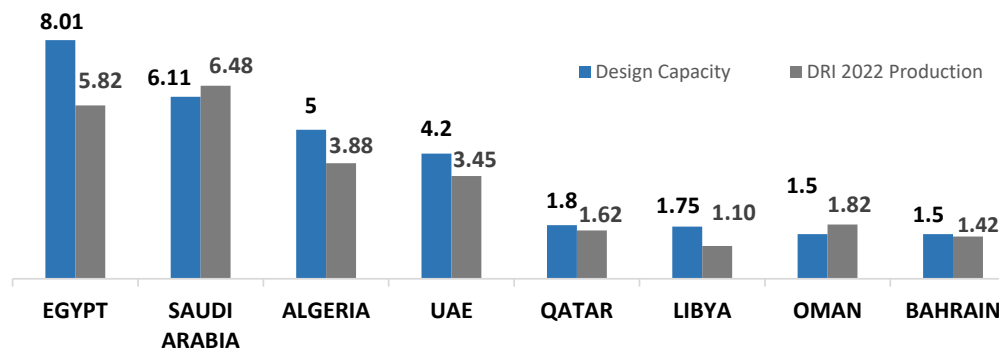
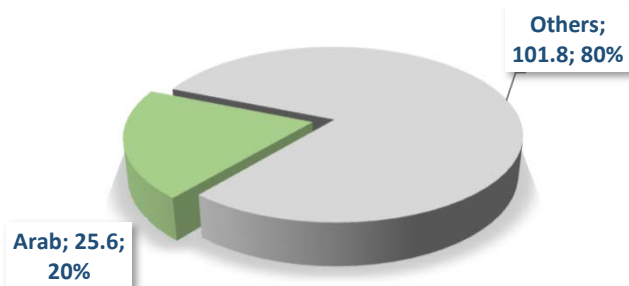
2022 Crude Steel production (M. Ton)



Crude Steel Production by Country 2022 (Million Ton)



2022 DRI production (M.Ton)



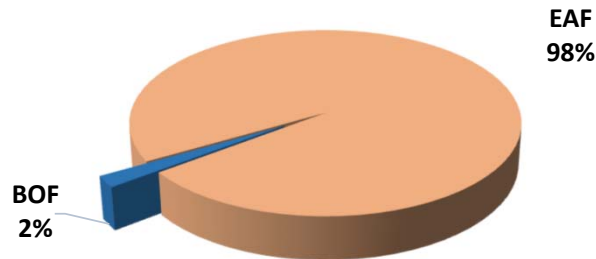
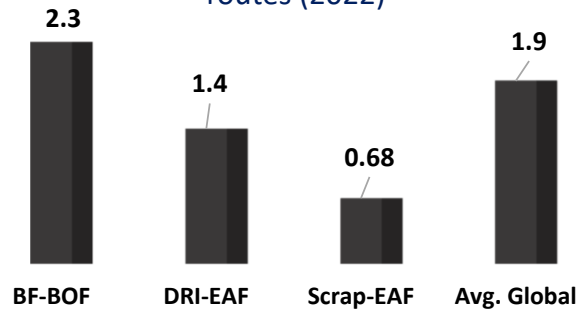
- *DRI Contribution ?*
- *Utilization and its limitations?*
- *DRI Technology (Hot, Cold, HBI)?*

Sources: World Steel Association Statistics.
MIDREX 2022 Direct Reduction Statistics.

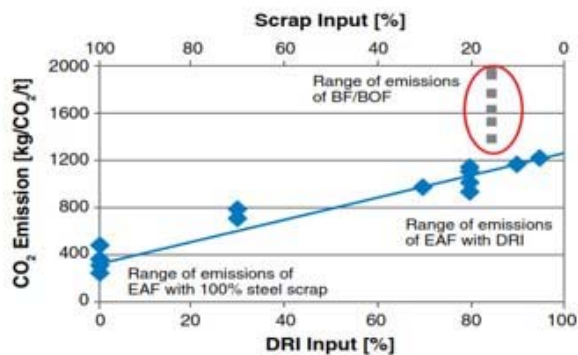
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Arab Countries Steel Carbon Emission

Average CO2 intensities (tCO2/tCS) of different routes (2022)



CO2 intensity of the iron and steel sector Targets NZE (tCO2/tCS)



- Arab Countries Plan To Cope With The Target ?
- Role of DRI?
 - ✓ Current Technology.
 - ✓ Blue/Green Hydrogen

Sources: World Steel Association CO2 data report 2023.
 OECD Assessing Steel Decarbonization Progress.
 "Hydrogen-Based DRI EAF Steelmaking — Fact or Fiction?" Sara A. Hornby article

Green Steel challenges in DRI Plants



Existing Plants – New Plants.



Refractory Issue.



Effect of 0% carbon direct reduced iron (DRI) on EAF.



CAPEX and OPEX



Steel prices and demands