

Global cumulative economy-wide and iron and steel emissions, no-GIT and mid-GIT scenarios, 2025–2050

→ Fig. 5



No-GIT scenario –
current mitigation policies and trade patterns for each country

Exporting countries:

Complete domestic steel decarbonization via H₂-DRI-EAF and scrap-based EAF, driven by abundant renewable resources. Green iron production stays entirely within national borders to serve domestic demand only.

Importing countries:

Continued BF-BOF (coal) operations alongside a gradual scrap-based EAF ramp-up through 2050. (Germany/UK phase out BF-BOF as planned). No green iron trade flows.



Mid-GIT scenario (50%) –
partial shift of ironmaking to cost-advantaged regions

Exporting countries:

Scale up H₂-DRI production beyond domestic needs to meet emerging international demand.

Importing countries:

Source ~50% of required iron from green iron imports starting in 2035. Domestic ironmaking continues in parallel, but its volume is cut by half.



Full-GIT scenario (100%) –
full realisation of global comparative advantage in green iron

Exporting countries:

Maximum scale-up of H₂-DRI production. Ironmaking concentrates where renewable energy is cheapest and iron ore is most abundant.

Importing countries:

Source 100% of iron from green iron imports. Domestic ironmaking is almost entirely replaced, allowing importing nations to focus strictly on steelmaking and downstream industries.