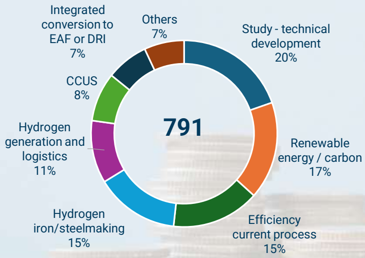
Global overview of green steel progress

Stanislav Zinchenko
CEO of GMK Center
s.zinchenko@gmk.center

Global decarbonization progress is slowing

Announced green iron & steel projects globally by type



+128 new projects in 2023

+109 new projects in 2024

+81 new projects in 2025

- **791** green iron & steel projects were announced globally over the last 10 years (GMK Center data).
- **275** steelmaking sites are engaged in green transformation.
- In 2025, only 18 projects (**2.3%**) reported some progress. 61% of them involved hydrogen-based steelmaking.
- In 2023, new green steel projects averaged 11 media mentions per month, in 2025 — just 7.

Companies have 4 years to meet 2030 decarbonization goals

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2030 decarbonization goals

ArcelorMittal - **25% (Group)** compared to 2018
- **35% (Europe)** compared to 2018

thyssenkrupp - **30%** compared to 2018

voestalpine - **30%** compared to 2019

SALZGITTER AG Stahl und Technologie - **50%** compared to 2018

United States Steel - **20%** compared to 2018

NIPPON STEEL - **30%** compared to 2013

CLIFFS - **25%** compared to 2017

- Steel companies set decarbonization goals to different base years.
- Winners are those who set targets to years when their emissions actually peaked.
- US Steel, ArcelorMittal (Group), Cleveland Cliffs have already met their 2030 targets. Nippon Steel is 6.6% away.
- European steel companies with ambitious targets will struggle to meet them.
- For example, voestalpine needs to cut emissions by 22.3% (compared to 2023), thyssenkrupp – by 24.9% (compared to 2023), Salzgitter – by 55.3% (compared to 2024).

Many European decarbonization projects have stalled

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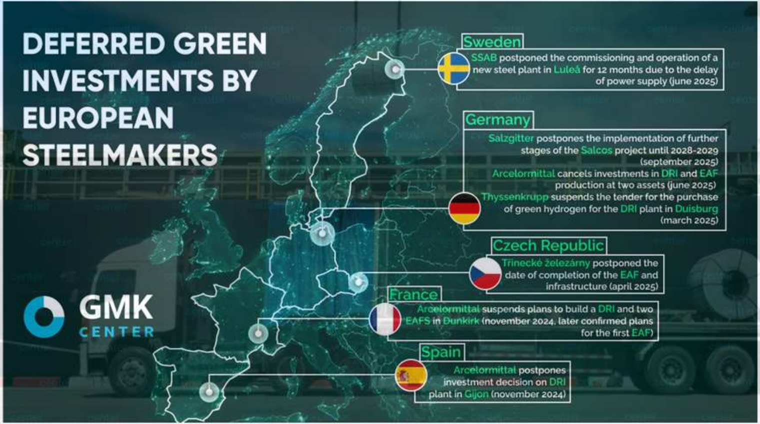

Decarbonization of European steel industry faces major challenges

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1. High energy costs
2. Lack of low-carbon electricity
3. High CAPEX requirements
4. Low technology readiness and significant scaling risks
5. Raw material constraints
6. Limited availability of green hydrogen
7. Lack of market demand for green steel
8. Global competitiveness pressure
9. Regulatory uncertainty in the EU
10. Infrastructure bottlenecks

Three biggest problems: electricity prices, scrap supply, and funding

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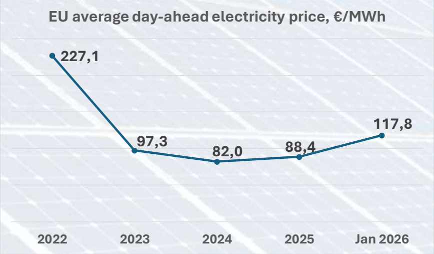
High electricity prices in the EU



In January 2026, electricity prices ranged from €80 to €160/MWh across EU countries

Additional scrap need

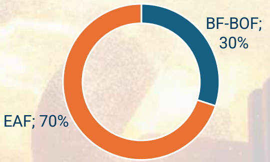
+8 mln tonnes to increase crude steel production in the EU by 13-14% in 2026

Investment sources

Why should companies invest in "green" steel production if there is no demand for "green" steel?

Turkiye: decarbonizing with scrap-based EAFs

Crude steel production in 2024



Carbon intensity (Scope 1), t CO_2/t steel

EAF – 0.2

BF-BOF – 2.1

Supplier of low-carbon rebar to the EU

- Turkiye built its steel sector around EAF. In 2024, 75% of capacity was EAF-based.
- Three major BF-BOF plants (Erdemir, Isdemir, Kardemir) are the main sources of carbon emissions. They rely on own funds, focusing on construction of EAFs and increasing energy efficiency.
- Carbon intensity of Turkish steel matches EU average. Low-carbon rebar from Turkiye is already exported to the EU.

Japan: focusing on BF upgrades and CCUS

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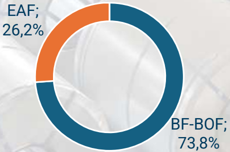
Crude steel production in 2024



Carbon intensity (Scope 1), t CO_2/t steel

EAF – 0.1

BF-BOF – 1.6

Supplier of low-carbon sheets to the EU

- Japan hasn't prioritized full EAF shift. Top steel companies aim to cut emissions from existing BF-BOF operations.
- To address residual BF emissions, Japanese steelmakers turn to CCUS.
- Due to limited domestic access to cheap renewables and green hydrogen, Japanese steelmakers plan to develop DRI projects overseas.
- Nippon Steel plans to build large-sized EAFs in Japan to process imported green HBI.
- Japan outperforms EU in steel carbon intensity. Low-carbon steel sheets are supplied to the EU.

South Korea: developing EAFs and international partnerships

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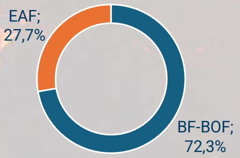
Crude steel production in 2024



Carbon intensity (Scope 1), t CO_2/t steel

EAF – 0.1

BF-BOF – 2.0

Supplier of low-carbon sheets to the EU

- POSCO plans to build two new EAFs by 2027 and shift more production to EAF over the next decade, but the shift is gradual.
- POSCO intends to supply its future EAFs with low-carbon HBI produced in Australia.
- Other Korean producers focus on EAF optimization and explore CCUS and partnerships in hydrogen production.
- Korean steelmakers have lower carbon intensity than EU average. South Korea supplies steel sheets to the EU.

MENA: transforming into global green HBI supply hub

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Crude steel production in 2024 (Middle East)

Carbon intensity (Scope 1), t CO_2/t steel

DRI-EAF – 0.8

Supplier of low-carbon HBI, flats & longs to the EU

- Most MENA countries have built their steel industries around natural gas based-DRI-EAF route. Local EAF plants are integrated, with captive DRI modules.
- All announced or planned MENA steel projects avoid BF-BOF route.
- MENA has one of the world's highest solar energy potentials, which gives a unique competitive edge for producing green hydrogen and powering EAF operations.
- MENA countries see green DRI/HBI production as an export opportunity to supply low-carbon raw materials to Europe and Asia.

USA: market-led transition built on EAFs

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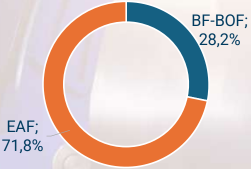
Crude steel production in 2024



Carbon intensity (Scope 1), t CO_2/t steel

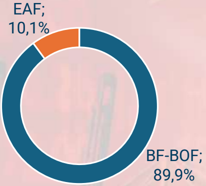
EAF – 0.3

BF-BOF – 1.6

- The US steel industry is already low-carbon. US steelmakers shifted from BF-BOF to EAF beginning in the 1980s, investing $23 billion in EAF facilities over time.
- This transformation occurred independently of climate policy pressure, driven by market forces and scrap availability.
- The US protects its market with tariffs maintaining competitiveness of local steelmaking.

China: gradual but strategic decarbonization

Crude steel production in 2024



- No new BF-BOF in China – only EAF projects get approved.
- Scrap is added to the list of critical materials.
- Chinese steel companies invest in pilot green steel projects. HBIS runs H_2-DRI-EAF plant (600 ths t/year), with plans to double to 1.2 mln t/year.
- In 2024, 35 green hydrogen projects launched with 48 ths tonnes/year of capacity.

Carbon intensity (Scope 1), t CO_2/t steel

BF-BOF – 2.0

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Everything about steel: media, think tank, research agency

MEDIA

Free data source about iron&steel:

- up-to-date market analytics
- corporate news
- full picture of global iron&steel industry
- interviews and opinions of market leaders
- steel and raw material prices

THINK TANK

Think tank:

- fundamental studies on key challenges for iron&steel industry
- new ideas for decision making, public and expert discussion
- support of the dialogue between steel market stakeholders

RESEARCH AGENCY

Market studies:

- global steel markets coverage
- scrap market
- DRI/HBI and DR-grade feed
- CBAM/ETS/carbon prices impact
- macroeconomic modelling
- prices forecast

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s.zinchenko@gmk.center