

2025: a year in review for green steel

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Summary

- **2025 marked a clear slowdown** in the green steel and green iron project pipeline, with fewer new announcements captured in LeadIT's Green Steel Tracker and several high-profile projects delayed, paused, or cancelled.
- **2026 is an important test year for delivery.** The tracker highlights Stegra's [Boden plant](#) in Sweden as the main near-term full-scale commissioning milestone, alongside several pilot and demonstration projects. However, our tracker analysis shows that delays are common across announced projects.
- **Policy signals to watch:**
 - The start of the EU Carbon Border Adjustment Mechanism's definitive phase from 1 January 2026 may begin to shape trade and decarbonization decisions, as importers must surrender CBAM certificates priced in line with the EU Emissions Trading System, with effective certificate obligations phased in as free allowances are withdrawn for EU producers.
 - Emerging cooperation on green steel standards could reduce fragmentation in certification over time.



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Slowing momentum and persistent barriers

The green steel and green iron sector saw relatively limited momentum in 2025. New announcements captured in the [Leadership Group for Industry Transition's \(LeadIT\) Green Steel Tracker \(GST\)](#) have fallen from a peak of 15 projects in 2021 to just two in 2025. This trend, according to analysts, broadly aligns with the [decline in global steel prices](#) and [weak market conditions](#) for European Union steel producers, where momentum from green steel has historically been strongest (Figure 1).

Figure 1: Count of projects announced by year and by continent

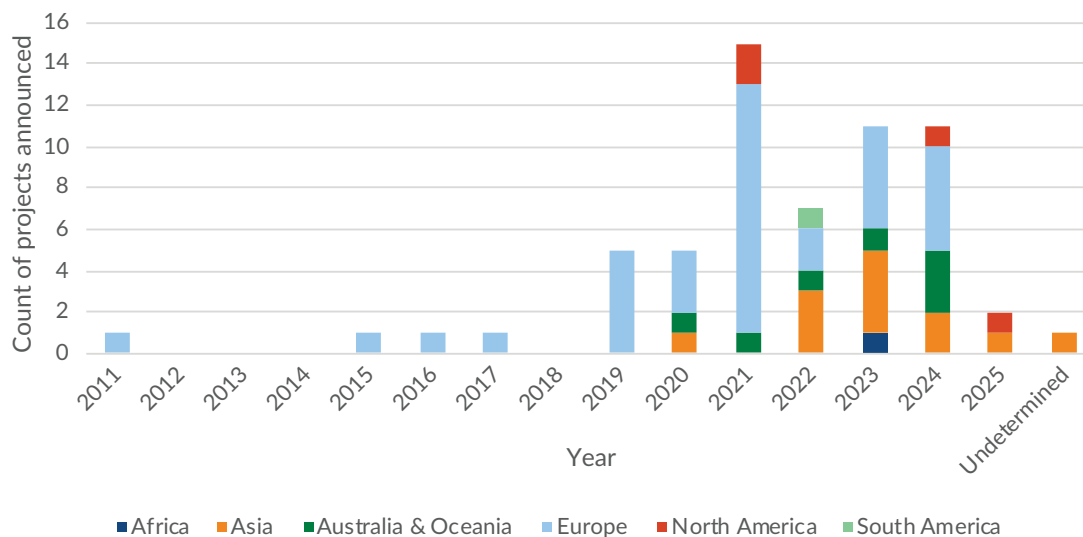


Figure 2: Project status by planned commissioning year, global

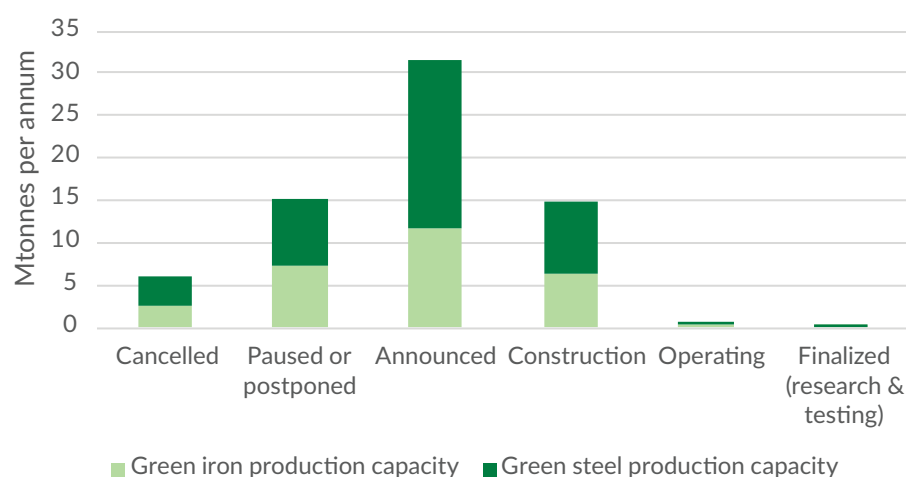


*Research and development projects that are currently operational or have finished testing

Progress in 2025 was mixed, particularly in Europe, with several high-profile projects delayed or paused (Figure 2). For example, [ArcelorMittal](#) announced in late 2024 that it was delaying final investment decisions on green steel projects across Europe, and in mid-2025 the company [announced that it was cancelling](#) two major green steel projects in Germany, with projects in Spain and France paused or postponed. The company stated that, despite securing significant state aid commitments, factors such as high electricity costs and green hydrogen not yet being “a viable fuel source”, alongside weak European steel demand and high steel import levels to the EU, led the company to [cancel or postpone decarbonization projects](#). Other European steelmakers have also cited the unavailability of green hydrogen at expected costs as delaying decarbonization plans. According to reports, Thyssenkrupp [announced in early 2025](#) they were putting a tender to purchase 151 000 million tonnes per year (Mt/y) of renewable and low-carbon hydrogen under 10-year contracts on hold due to expectations that prices would be significantly higher than planned.

Based on our analysis of projects in the GST, total planned capacity by 2050 amounts so far to 28 Mt/y of green steel and 18 Mt/y of green iron (an intermediate product used as feedstock for steelmaking). These volumes represent a fraction of today’s [1800 Mt/y of steel production](#), indicating a clear need for more ambitious decarbonization commitments in the sector. Today only about 270 000 tonnes per year (t/y) of green iron capacity and about 60 000 t/y of green steel capacity are operational, showing that only a very small share of the planned pipeline has reached operation to date (Figure 3).

Figure 3: Planned capacity by project status



Looking forward to 2026

The year 2026 may represent an important test for the green steel sector. One new full-scale project is currently scheduled for commissioning, which is Stegra's Boden Plant in Sweden which, after facing substantial challenges and delays, will be the largest facility globally to use green-hydrogen-based direct reduced iron (H-DRI) combined with electric arc furnace (EAF)-produced steel – one of the [main technology routes now being pursued](#) to decarbonize primary steel production. In its first phase, the [Stegra plant](#) will ramp up to producing 2.5 Mt/y of green steel, and by 2030 the company is [targeting 5 Mt/y](#).

Apart from this project, we are also tracking a range of pilot, demonstration and early commercial projects that are expected to be commissioned in 2026:

- Electra's demonstration plant in the United States, which uses electrowinning as opposed to traditional technologies, with a capacity of up to 500 tonnes of green iron per year.
- The Fortescue Pilbara Demonstration Project in Australia will use H-DRI and Electric Smelting Furnace with a maximum capacity of 1500 tonnes of steel per year.
- SSAB's Oxelösund mini-mill conversion in Sweden, replacing the site's blast furnace–basic oxygen furnace (BF–BOF) assets with an EAF, is scheduled to be up and running toward the [end of 2026](#). Initially, the site will primarily rely on recycled steel scrap as feedstock, but the intention is to also use primary green iron from the [HYBRIT demonstration value chain](#) in Gällivare in the future. The Gällivare HYBRIT demonstration plant timeline has slipped however, with [LKAB](#) stating that the sponge-iron demonstration plant is [expected to be completed in 2028](#).
- ArcelorMittal's Hamburg H2 demonstration is an announced pilot-scale project at its Hamburg DRI-EAF site, designed to test H-DRI, replacing natural gas in the existing process with hydrogen to make low-carbon DRI. The project has been listed as coming online in 2026, but no recent public progress updates have been reported.

Successful delivery of the first commercial-scale green steel project and new pilot projects in 2026 could spur confidence in the sector, influencing the pace of new project announcements in the future. However, schedule risk remains material. Our tracker shows that delays are common among projects with publicly reported commissioning dates, while for many others, the available information is insufficient to assess timing.

New policy developments to watch

A key development in 2026 is the implementation of the EU's Carbon Border Adjustment Mechanism (CBAM) definitive phase starting January 2026, ending the transitional reporting-only period (1 Oct 2023–31 Dec 2025). Importers of covered goods, such as iron, steel, and cement, must now file an annual, verified emissions declaration and surrender CBAM certificates priced in line with the EU Emissions Trading System (EU ETS). The effective certificate obligation is [phased in](#) to mirror the gradual phase-out of EU ETS free allowances provided to EU producers in the targeted sectors. Analysts have [reported](#) that this new mechanism has already had an impact on strategic acquisitions and business models.

Another key development is the [new announcement](#) at COP30 in Belém that there will be increased collaboration between certification bodies to align on a global green steel standard or on compatibilities between standards. While still in its early days, this can be a major accelerator for the sector, as it simplifies the process of qualifying a product as being “green steel”.

In summary, while the sector still falls short of emission reduction targets, incumbent global steel makers continue to signal interest in decarbonization efforts despite significant headwinds. Meaningful progress is contingent on the large, ambitious projects surviving these difficult times, which may require policy interventions.

Methodological note: scope and examples of exclusions

Despite nearly 160 projects being reviewed by the team, only the most ambitious projects qualify as green in our tracker. [Our methodology](#) focuses on primary steelmaking from iron ore, rather than scrap recycling, because primary production is far more emissions-intensive and therefore where deep decarbonization matters most.

We define “green steel” projects primarily as those that avoid carbon emissions at the source, rather than relying on capturing them after they are produced. In practice, the tracker prioritizes projects that phase out coal-based BF–BOF production and replace it with routes powered by renewable electricity or hydrogen produced from renewable energy (green hydrogen), or both.

Qualifying technology pathways include:

- H-DRI using green hydrogen
- Electricity-based ironmaking, such as molten oxide electrolysis, electrowinning, or electric smelting reduction
- EAF steelmaking when paired with green iron produced via the above low-carbon primary routes
- Transition DRI-EAF projects that begin with natural gas or scrap, but where there is a clear and credible plan to shift to green hydrogen or green iron

We also track carbon capture and storage or usage projects as complementary measures, since they do not necessarily eliminate process emissions sufficiently.

As a broad benchmark, we consider green iron and steel pathways to be those capable of around 85% emissions reduction versus average conventional production, which is approximately below 300 kg carbon dioxide per tonne of steel produced.

As our methodology focuses on the most ambitious emissions reducing projects, a significant number of technologically relevant projects are omitted from this analysis. However, details on these types of projects can be found in [our complete dataset](#). Some examples of large-scale projects that did not qualify for the tracker include:

- Hami Tonghuide Steel Plant in Xinjiang, China and both the Meranti and Jindal plants in Duqm, Oman, which, despite using hydrogen-ready DRI-EAF technology and their stated eventual transition from using natural gas to green hydrogen, did not provide a timeline for this transition. Hence, they do not qualify as green steel projects in our tracker.
- Nippon Steel COURSE50 Kimitsu Plant in Japan and the Xingguo Changli County Hydrogen Project in China use hydrogen injection in their blast furnaces, which, despite reducing emissions, is insufficient to meet the emissions reduction requirements in our methodology.

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