

# The Growing Role of Low-Carbon Steel in Sustainable Construction and Green Infrastructure, FMI Study

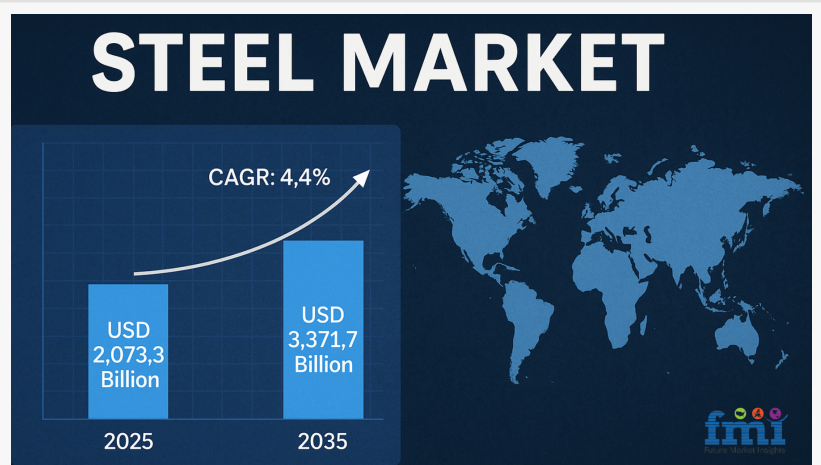
*Low-carbon steel is transforming sustainable construction, driven by innovation, green policies, and rising global demand for eco-friendly materials.*

NEWARK, DE, UNITED STATES, May 8, 2025 /EINPresswire.com/ -- As the global economy shifts toward sustainability, the [steel market](#) is undergoing a silent yet impactful transformation. While conventional steel production has long been linked to high carbon emissions, a lesser-known but fast-emerging segment—low-carbon steel—is gaining traction in the construction and infrastructure sectors. Often overshadowed by discussions on [stainless steel](#) variants, pricing cycles, or regional overcapacity, the conversation around low-carbon steel remains relatively uncommon in standard steel market reports. However, this material's influence is expanding rapidly, driven by environmental policy changes, technological breakthroughs, and the demand for eco-friendly construction materials.

“

The shift toward low-carbon steel marks a pivotal evolution in the steel market, aligning industrial growth with climate goals and redefining material sourcing strategies.”

*Nikhil Kaitwade, Associate  
Vice President at Future  
Market Insights*



Steel Market Size

Low-carbon steel, characterized by reduced carbon content and lower greenhouse gas emissions during production, is becoming integral to sustainable construction practices. Unlike conventional steel, which emits approximately 1.8 tons of CO<sub>2</sub> per ton of steel produced, low-carbon steel can reduce emissions by up to 70% when combined with electric arc furnace (EAF)

technology powered by renewable energy sources. This makes it a vital player in the race toward

achieving net-zero building emissions.

Report: Low-carbon steel – a key to net-zero buildings – is the future! | Future Market Insights

<https://www.futuremarketinsights.com/reports/sample/REP-GB-18465>

What sets low-carbon steel apart is not only its manufacturing process but also its recyclability and durability, qualities that align with the long-term goals of green building certifications like LEED and BREEAM. Despite its growing importance, low-carbon steel still receives limited coverage in mainstream steel industry forecast discussions. This gap presents an opportunity for deeper industry insight.

Report: Low-carbon steel – a key to net-zero buildings – is the future! | Future Market Insights

One of the core forces behind the transition to low-carbon steel is regulatory pressure. Governments across the globe are tightening emissions targets. The European Union's Green Deal and Carbon Border Adjustment Mechanism (CBAM), for example, are creating an economic advantage for steelmakers that can prove their products are low in carbon intensity. Similarly, the United States has introduced clean energy tax incentives under the Inflation Reduction Act, which further supports steel industry trends that lean toward sustainability.

Major construction firms are also increasingly demanding materials that help reduce the carbon footprint of their projects. In cities like Oslo, Toronto, and Singapore, government contracts now often stipulate that steel used in public buildings and infrastructure must meet low-emission standards. This shift in procurement strategy is prompting both established players and emerging producers to rethink their offerings and integrate low-carbon technologies into their production chains.

Report: Low-carbon steel – a key to net-zero buildings – is the future! | Future Market Insights

The evolution of green steel is closely tied to advancements in production technology. Traditional blast furnace methods are being phased out in favor of electric arc furnaces, [direct reduced iron \(DRI\)](#) processes, and hydrogen-based reduction methods. Companies like Sweden's SSAB have pioneered the HYBRIT initiative, which utilizes hydrogen instead of coke in the steelmaking process, resulting in virtually no carbon emissions. The pilot projects have demonstrated that scalable production of zero-carbon steel is possible, though cost remains a barrier.

Report: Low-carbon steel – a key to net-zero buildings – is the future! | Future Market Insights

<https://www.futuremarketinsights.com/reports/steel-market>

Elsewhere, global steel giants such as ArcelorMittal and Tata Steel are investing billions in decarbonizing their plants. ArcelorMittal's steel plant in Ghent, Belgium, has initiated carbon capture and utilization (CCU) facilities, aimed at repurposing CO<sub>2</sub> for commercial use instead of releasing it into the atmosphere. These developments signal a growing shift in steel market

dynamics and a deeper commitment to innovation in green metallurgy.

Real-world applications of low-carbon steel are already demonstrating its viability and benefits.

In the Netherlands, the Windpark Fryslân project—the world's largest freshwater wind farm—utilized low-carbon steel components for its foundation and support structures. The material was selected not just for environmental compliance, but also for its strength-to-weight ratio and ease of fabrication.

Similarly, in Japan, low-carbon steel was used in the reconstruction of earthquake-resistant infrastructure in Fukushima Prefecture. This decision was based on the material's flexibility and performance under stress, which is crucial for regions prone to natural disasters.

In the private sector, automakers such as Volvo and Mercedes-Benz have committed to integrating green steel into their supply chains. This cross-sector adoption is creating downstream market pull and reinforcing the position of low-carbon steel within the broader industrial ecosystem.

The increased use of low-carbon steel is likely to reshape future steel industry forecasts.

According to data from Future Market Insights, the market is valued at USD 2,073.3 billion in 2025. As per FMI's analysis, the Steel Industry will grow at a CAGR of 4.4% and reach USD 3,371.7 billion by 2035. While the current cost of low-carbon steel remains approximately 20–30% higher than conventional steel, rising carbon prices and sustainability premiums in procurement are expected to narrow this gap.

For more insights, visit <https://www.futuremarketinsights.com/industry-analysis/general-and-advanced-materials>

Emerging economies in Southeast Asia and Africa, which are experiencing rapid urbanization, could serve as critical growth engines for low-carbon steel adoption. If supported by the right financing models and technology transfer mechanisms, these regions could leapfrog traditional steel production methods altogether.

By Steel Type:

- Carbon Steel

- Low-Carbon Steel

- Medium-Carbon Steel

- High-Carbon Steel
- Stainless Steel
- Austenitic Stainless Steel
- Ferritic Stainless Steel
- Martensitic Stainless Steel
- Others<sup>1</sup>
- Alloy Steel
- High Strength Steel
- Low Alloy Steel
- Tool Steel
- Others

#### By End Use:

- Building and Construction
- Escalators and Lifts
- Cladding
- Frames and Supporting Rails
- Piping
- Plumbing and Drainage
- Roofing
- Automotive
- Chassis
- Automotive Body Parts
- Others
- Railways
- Shipbuilding and Marine
- Aerospace
- Oil and Gas, and Energy
- Heavy Machinery and Equipment
- Consumer Appliances
- Cutting Tools and Agriculture Equipment

#### By Region:

- North America
- Latin America
- Western Europe
- Eastern Europe
- East Asia
- South Asia Pacific
- Middle East
- Africa

□□□□□□ □□□□□□:

Europe Silica Sand for Glass Making Market:

<https://www.futuremarketinsights.com/reports/europe-silica-sand-market>

USA and Canada Alumina Market: <https://www.futuremarketinsights.com/reports/united-states-and-canada-alumina-market>

United Kingdom Veneered Panels Market:

<https://www.futuremarketinsights.com/reports/united-kingdom-veneered-panels-market>

Composite Tooling Market: <https://www.futuremarketinsights.com/reports/composite-tooling-market>

Polycrystalline Silicon Market: <https://www.futuremarketinsights.com/reports/polycrystalline-silicon-market>

□□□□ □□□□□ □□□□□ □□□□□□□□ (□□□)

Future Market Insights, Inc. (ESOMAR certified, recipient of the Stevie Award, and a member of the Greater New York Chamber of Commerce) offers profound insights into the driving factors that are boosting demand in the market. FMI stands as the leading global provider of market intelligence, advisory services, consulting, and events for the Packaging, Food and Beverage, Consumer Technology, Healthcare, Industrial, and Chemicals markets. With a vast team of over 400 analysts worldwide, FMI provides global, regional, and local expertise on diverse domains and industry trends across more than 110 countries.

Join us as we commemorate 10 years of delivering trusted market insights. Reflecting on a decade of achievements, we continue to lead with integrity, innovation, and expertise.

□□□□□□ □□:

Future Market Insights Inc.

Christiana Corporate, 200 Continental Drive,

Suite 401, Newark, Delaware - 19713, USA

T: +1-347-918-3531

For Sales Enquiries: [sales@futuremarketinsights.com](mailto:sales@futuremarketinsights.com)

Website: <https://www.futuremarketinsights.com>

LinkedIn | Twitter | Blogs | YouTube

Ankush Nikam

Future Market Insights Global & Consulting Pvt. Ltd.

+ +91 90966 84197

[email us here](#)

Visit us on social media:

[Other](#)

---

This press release can be viewed online at: <https://www.einpresswire.com/article/810843708>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2025 Newsmatics Inc. All Right Reserved.