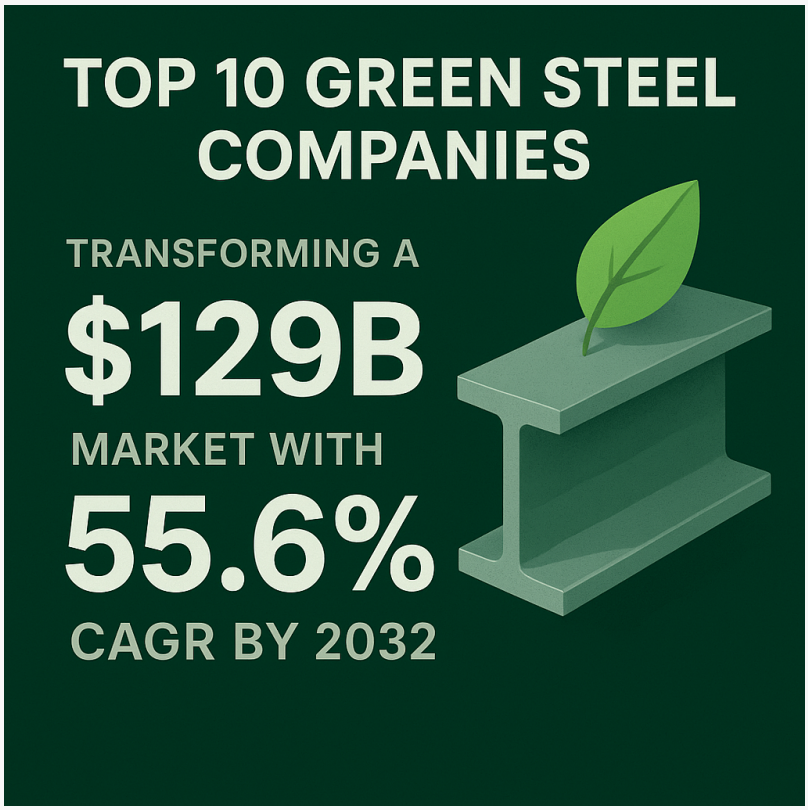
Top 10 Green Steel Companies are Transforming a USD 129.08 Billion Market with 55.6% CAGR by 2032

Global Green Steel Market valued at USD 2.62B in 2023, rising to USD 3.75B in 2024 and USD 129.08B by 2032, CAGR 55.6%, North America 58.02% share.



Green Steel Market Size

NY, UNITED STATES, October 3, 2025 /EINPresswire.com/ -- The global green steel market was valued at USD 2.62 billion in 2023 and is expected to grow from USD 3.75 billion in 2024 to USD 129.08 billion by 2032, registering a remarkable compound annual growth rate (CAGR) of 55.6% over the forecast period. In 2023, North America led the market, accounting for a 58.02% share.

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Market Overview

Green steel market represents a transformative shift in the steel industry, aiming to significantly reduce carbon emissions associated with traditional steel production. Unlike conventional methods that rely on coal-based blast furnaces, green steel utilizes renewable energy sources, such as hydrogen and electricity, to produce steel with minimal environmental impact. This innovation is crucial as the steel industry accounts for approximately 8% of global carbon emissions. By adopting green steel technologies, manufacturers can contribute to global decarbonization efforts and meet the increasing demand for sustainable materials across various sectors.

The green steel market is experiencing rapid growth, driven by advancements in production

technologies, supportive government policies, and increasing consumer demand for eco-friendly products. From pilot projects to large-scale industrial applications, green steel is poised to revolutionize the manufacturing landscape.

Asia Pacific is also witnessing significant developments in green steel production. Countries like China, Japan, and India are investing in sustainable steelmaking technologies, aiming to reduce their carbon footprints and meet international environmental standards. These efforts are supported by both government initiatives and private sector investments.

Top 10 Leading Green Steel Manufacturers

1. Boston Metal

Boston Metal is at the forefront of green steel innovation, utilizing renewable electricity to convert iron ore into steel through its Molten Oxide Electrolysis (MOE) technology. This method eliminates carbon dioxide emissions traditionally associated with steel production. The company has secured significant investments, including a $120 million funding round supported by ArcelorMittal and Microsoft, to scale its operations and commercialize its technology.

2. H2 Green Steel

Based in Sweden, H2 Green Steel is developing a €6.5 billion project aimed at producing 2.5 million tonnes of steel annually by 2030 using hydrogen instead of coking coal. The hydrogen will be produced through electrolysis using green hydroelectric power, reducing carbon emissions by up to 95%. This initiative is part of Europe's broader strategy to decarbonize heavy industries.

3. Nucor Corporation

Nucor, a leading steel producer in the United States, is investing in electric arc furnace technology to produce steel from recycled scrap metal using renewable electricity. This method significantly lowers carbon emissions compared to traditional blast furnace processes. Nucor's commitment to sustainability is evident in its ongoing efforts to expand its green steel production capabilities.

4. POSCO

South Korea's POSCO is exploring hydrogen-based direct reduction methods to produce green steel. The company is collaborating with various stakeholders to develop and implement technologies that reduce reliance on coal and lower greenhouse gas emissions in its steelmaking processes.

5. ArcelorMittal

As one of the world's largest steel manufacturers, ArcelorMittal is actively pursuing green steel initiatives. The company has invested in various projects, including partnerships with startups like Boston Metal, to develop and commercialize technologies that enable low-carbon steel production.

6. Thyssenkrupp Steel Europe

Thyssenkrupp is implementing hydrogen-based steelmaking technologies at its Duisburg site, aiming to replace coke with hydrogen in the reduction process. The company is also exploring the use of carbon capture and storage (CCS) to further reduce emissions from its operations.

7. SSAB
Swedish steelmaker SSAB is collaborating with LKAB and Vattenfall on the HYBRIT project, which aims to produce fossil-free steel using hydrogen. The project is a significant step towards achieving net-zero emissions in the steel industry.

8. POSCO International
A subsidiary of POSCO, POSCO International is involved in the development and commercialization of green steel technologies. The company is exploring various methods, including hydrogen-based reduction processes, to produce steel with minimal environmental impact.

9. JSW Steel
India's JSW Steel is investing in electric arc furnace technology and exploring hydrogen-based steelmaking methods to reduce carbon emissions. The company is also focusing on increasing the use of recycled scrap metal in its production processes.

10. Tata Steel
Tata Steel is implementing various initiatives to reduce its carbon footprint, including the development of hydrogen-based steelmaking technologies and the expansion of its electric arc furnace capacity. The company is committed to achieving net-zero emissions by 2050.

Frequently Asked Questions (FAQs)
1. What is green steel?
Green steel refers to steel produced using methods that significantly reduce or eliminate carbon emissions compared to traditional steelmaking processes. This includes using renewable energy sources and alternative reduction agents like hydrogen.

2. Why is green steel important?
The steel industry is one of the largest industrial sources of carbon dioxide emissions. Transitioning to green steel is crucial for reducing global greenhouse gas emissions and combating climate change.

3. Which companies are leading in green steel production?
Leading companies in green steel production include Boston Metal, H2 Green Steel, Nucor Corporation, POSCO, ArcelorMittal, Thyssenkrupp Steel Europe, SSAB, POSCO International, JSW Steel, and Tata Steel.

4. What technologies are used in green steel production?
Green steel production utilizes technologies such as hydrogen-based direct reduction, electric

arc furnaces, and carbon capture and storage (CCS) to reduce emissions.

5. Where is green steel production taking place?
Green steel production is being developed in various regions, including Europe (Sweden, Germany), North America (United States), and Asia (South Korea, India).

6. What are the challenges in adopting green steel?
Challenges include high initial investment costs, the need for infrastructure development (such as hydrogen production and distribution), and the availability of renewable energy sources.

7. How can consumers support green steel initiatives?
Consumers can support green steel initiatives by choosing products made from sustainably produced steel and advocating for policies that promote sustainable manufacturing practices.

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