

Green steel market is projected to reach \$364.5 billion by 2032 | End User Construction Automotive Electronics

green steel market is poised for significant growth, driven by increasing awareness of green steel production, government support, and technological advancement

WILMINGTON, DE, UNITED STATES, December 26, 2024 /EINPresswire.com/ -- Global Green Steel Market Analysis, 2023-2032

The global green steel market is poised for substantial growth, with its value projected to surge from \$200 million in 2022 to \$364.5 billion by 2032, at a remarkable compound annual growth rate (CAGR) of 113.6% from 2023 to 2032. [Green hydrogen](#), produced from green hydrogen derived from renewable sources without the use of fossil fuels, is expected to play a pivotal role in reducing carbon emissions and achieving the sustainable development goals of various countries. The growing consumer and producer motivation for sustainable products, coupled with increasing government initiatives globally, has significantly boosted the growth of the global green steel market.

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Green Steel Market Insights 2032 Market Dynamics

The increasing awareness of green steel production in prominent industries is a key driver of market growth. Market players are investing in greenfield projects, building partnerships, and forming strategic alliances to transform their businesses into green steel production, thereby driving market growth. Government support and investment in green steel manufacturing are also significant factors boosting demand. For instance, in 2021, the Government of India announced the National Hydrogen Mission to support the country's energy transition goals across all industries. Additionally, automotive companies like BMW have committed to using green steel in their vehicles, aiming to reduce greenhouse gas (GHG) emissions by up to 95% by 2025.

Several projects and initiatives worldwide are contributing to the growth of the green steel market:

Europe: Projects like HYBRIT and H2 Green Steel aim to replace fossil fuels with green hydrogen. The HYBRIT project in Sweden is a joint venture between an iron ore producer, a steel manufacturer, and a power utility, aiming to replace one blast furnace with zero-carbon steel technology by 2030.

U.S.: Boston Metal, a company emerging from the Massachusetts Institute of Technology (MIT), is developing direct electrolysis from iron ore, using electricity from renewable sources to ensure sustainability and zero emissions.

Green Steel for Europe: This EU-funded initiative aims to develop a fossil-free steel production process by 2030, involving a consortium of 12 partners from seven European countries.

The rise in global urbanization is expected to increase the demand for infrastructure, providing lucrative opportunities for the green steel market. By 2040, the global population is estimated to grow by approximately two billion, with the urban population growing by over 40%. Technologies used in green steel production, such as hydrogen direct reduction (HDR) and molten oxide electrolysis (MOE), are low-carbon primary steelmaking technologies. Carbon capture and storage (CCS) can also be applied to blast furnaces to reduce emissions. Additionally, the use of electric arc furnaces, which rely on recycled scrap steel, further reduces emissions.

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However, the green steel market faces several challenges:

High Production Costs: The high production cost of green steel, determined by renewable energy and electrolyzer costs, poses a significant challenge.

COVID-19 and Inflation: The COVID-19 pandemic and global inflation have introduced volatility in the prices of raw materials used for manufacturing green steel. The Ukraine-Russia war has exacerbated these issues, leading to increased costs of oil and gas, and negatively impacting industrial production, including green steel.

Segmental Overview

The green steel market is segmented by type, end-user, and region.

By Type: The market is divided into electric arc furnaces (EAF) and molten oxide electrolysis (MOE). The MOE segment dominated the market in 2020 and is expected to maintain this trend during the forecast period. The EAF segment is expected to grow at the highest CAGR.

By End-User: The market is categorized into construction, automotive, electronics, and others. The automotive segment dominated the market and is expected to continue dominating during the forecast period.

By Region: The market is analyzed across North America, Europe, and Asia-Pacific. Europe accounted for the highest share of the green steel market in 2020 and is expected to maintain its dominance during the forecast period.

Green Steel Market by Type

The molten oxide electrolysis (MOE) segment dominated the green steel market in 2020 and is

expected to maintain this trend during the forecast period. MOE is used for the manufacturing of carbon-free metals, generation of oxygen for extra-terrestrial exploration, and control of CO2 emissions in the steel industry. For instance, in April 2021, Kobe Steel Japan launched "Kobenable Steel," Japan's first low CO2 blast furnace steel, which cut CO2 emissions by 20%.

Green Steel Market by End-User

The automotive segment dominated the green steel market and is expected to continue dominating during the forecast period. The increase in demand for customized parts and metal products for the automotive industry is driving the green steel market. Major players are adopting strategies such as innovation in the manufacturing process to reduce carbon footprint and make steel environmentally sustainable. For instance, in July 2022, Volvo announced the use of 100% green steel in its manufacturing process by 2050 as part of the industry-led SteelZero initiative.

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Green Steel Market by Region

Europe accounted for the highest share of the green steel market in 2020 and is expected to maintain its dominance during the forecast period. The increased building activities in Europe have resulted in a significant increase in demand for green steel. The market is predicted to develop as a result of a rise in residential and non-residential building activities and rising home improvement spending, particularly in Eastern European nations.

Competition Analysis

Key players in the green steel market include ArcelorMittal, Green Steel Group, H2 Green Steel, Emirates Steel, Jindal Steel and Power, JFE Steel, Nippon Steel, POSCO, U.S. Steel Corporation, and Nucor. Major players have adopted product launches and acquisitions as key developmental strategies to improve their product portfolios.

Some notable collaborations and expansions in the market include:

H2 Green Steel: Collaborated with GreenIron H2 for recycling iron residual and waste, and with Hitachi Energy for equity investment, energy solutions, and green steel. Also collaborated with BMW Group for the delivery of CO2-reduced steel.

Jindal Steel and Power: Expanded its greenest steel plant in Odisha to fulfill green steel demand in India.

H2 Green Steel: Expanded its building large-scale fossil-free steel plant in northern Sweden.

U.S. Steel Corp.: Signed a non-binding agreement with SunCoke Energy, Inc. for the acquisition of two blast furnaces at Granite City Works and the construction of a granulated pig iron manufacturing facility in the U.S.

Key Benefits for Stakeholders

The report provides an extensive analysis of the current and emerging green steel market trends and dynamics. Key benefits include:

In-Depth Market Analysis: The report offers a comprehensive analysis of market segments, current trends, estimations, and dynamics from 2020 to 2032.

Product Positioning and Competitor Monitoring: Extensive analysis of the green steel market is conducted by following key product positioning and monitoring top competitors within the market framework.

Regional Analysis: A comprehensive analysis of all regions is provided to determine prevailing opportunities.

Market Forecast: The green steel market forecast analysis from 2023 to 2032 is included in the report.

Competitive Landscape: The key market players are profiled, and their strategies are analyzed thoroughly, helping to understand the competitive outlook of the green steel industry.

Key Market Players

Some of the key players in the green steel market include:

ArcelorMittal

NIPPON STEEL CORPORATION

H2 Green Steel

Emirates Steel Arkan

JFE Steel Corporation

Jindal Steel & Power Ltd.

U.S. Steel Corporation

Green Steel Group Inc.

POSCO International

Nucor Corporation (Nucor Tubular Products)

In conclusion, the global green steel market is poised for significant growth, driven by increasing awareness of green steel production, government support, and technological advancements.

Despite challenges such as high production costs and the impact of the COVID-19 pandemic and inflation, the market is expected to recover and continue its growth trajectory. Stakeholders can leverage the insights from this report to make informed decisions and capitalize on the growing demand for green steel.

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