

# **European Green Steel Market: Analysis By Demand, By Supply, By Type (Molten Oxide Electrolysis (MOE) and Electric Arc Furnace (EAF), By End User (Automotive, Construction, Electronics And Other End Users), By Region Size & Forecast with Impact Analysis of COVID-19 and Forecast up to 2028**

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## **Abstracts**

Green steel is environmentally friendly steel that has a lower carbon footprint than traditional steel-making processes. The implementation of non-coal-based alternative technologies results in a reduction in this footprint. In most cases, green steel production uses green hydrogen rather than coal or electricity generated from non-fossil sources. In 2022, the Europe green steel market was valued at US\$47.36 million, and is probable to reach US\$1272.06 million by 2028.

European green steel market is expected to see growth in the future as European steelmaking rivals, such as Germany's Thyssenkrupp and ArcelorMittal, are also looking at using hydrogen to replace coking coal. With demand growth rising rapidly, it is expected that suppliers of green steel to enjoy a uniquely tight supply/demand balance over the coming decade with attractive margin upside expected. But as supply grows and green steel becomes the new norm, pricing power is likely to fade in the longer-term. The Europe green steel market is projected to grow at a CAGR of 75.24%, during the forecast period of 2023-2028.

The outlook for green steel demand has positively surprised over recent years with a broader mix of end users than initially expected. It can be observed that demand for green steel has expanded too many more end markets than initially expected. Demand for green steel is ultimately led by a combination of two key drivers: Scope 3 emissions

reduction targets and end consumer demand. Europe green steel market demand stood at 1.23 million tonnes in 2022.

Europe green steel market has seen a supply in 2021 as SSAB, a Swedish consortium delivered the first batch of the metal—made using ‘green’ hydrogen—to an automobile manufacturer for truck production. Swedish steel companies will ramp up the country’s steel production over the next few years as green hydrogen helps drive the transformation of one of the hardest industries to decarbonize. Europe green steel market supply stood at 756.30 thousand tonnes in 2022.

### **Market Segmentation Analysis:**

**By Type:** According to the report, the Europe green steel market is segmented into two types: Molten Oxide Electrolysis (MOE) and Electric Arc Furnace (EAF). Molten Oxide Electrolysis (MOE) segment acquired majority of share in the market in 2022, as it removes the need for coking ovens and blast furnaces. Instead, iron ore is dissolved in a liquid electrolyte solution at a temperature of about 1,600°C before an electrical current is passed through the solution, reducing the iron ore into a liquid in an endothermic reaction. Whereas, Electric Arc Furnace (EAF) segment is expected to have the highest CAGR in the future as arc furnaces used in research laboratories and by dentists may have a capacity of only a few dozen grams. These furnaces run on natural gas and will eventually use green hydrogen (H<sub>2</sub>), dramatically reducing the plant’s carbon emissions.

**By End User:** According to the report, the Europe green steel market is segmented into four end users: Automotive, Construction, Electronics and Other End Users. Automotive segment acquired majority of share in the market in 2022, as green steel is now being used by automakers to ensure a cleaner, greener manufacturing ecosystem. Moreover, international auto makers like GM, Volvo, Mercedes etc., have pledged to become carbon neutral by 2040.

**By Region:** According to this report, the Europe green steel market can be divided into five sub regions: Sweden, Germany, France, UK and Rest of Europe. Sweden green steel market enjoyed the highest market share in 2022, primarily owing to aims for climate neutrality by 2045 and accounts for the biggest investment volume that has been announced. Swedish steel venture H2 Green Steel – founded in 2020 – announced that some of the most prominent European financial institutions have decided to support the hydrogen-based steel plant construction in northern Sweden. These investments and funding would increase the supply as many players would

establish green steel plants in Europe. Swedish steel companies will ramp up the country's steel production over the next few years as green hydrogen helps drive the transformation of one of the hardest industries to decarbonize.

### **Europe Green Steel Market Dynamics:**

**Growth Drivers:** Green steel is the manufacturing of steel without the use of fossil fuels. Demand for green steel is increasing and technologies continue to be developed as the industry moves towards decarbonization and a more sustainable future. This is considered a positive indicator for the green steel market. Further, the market is expected to increase due to carbon neutrality, certificate-based products, premium green steel, multiple end users, etc.

**Challenges:** Higher cost of production is a major challenge facing the green steel market. One of the main reasons for the higher cost of green steel production is the use of alternative raw materials and energy sources. For example, green steel production often involves using recycled steel scrap as raw material, which is more expensive than using virgin iron ore. The other challenge that green steel market complex carbon accounting calculation, energy crisis, etc.

**Trends:** A major trend gaining pace in green steel market is increasing investment in launching green field projects. Market players are increasingly investing in launching green field projects and building partnerships and strategic alliances to transform their businesses in green steel is driving the market. About two thirds of the projects (31 out of 47) are in Europe, where the largest investments occur. Swedish companies have announced the largest share of investment (with US\$22-51 Billion for 6 projects), followed by a South Korean company (US\$8.8 Billion) and 11 projects announced by German firms. More trends in the market are believed to augment the growth of green steel market during the forecasted period include high utilization of biomass resources, new technologies, etc.

### **Impact Analysis of COVID-19 and Way Forward:**

The COVID-19 pandemic continues into 2022 and is still impacting different industries across the globe. There is no significant impact of COVID-19 on the Europe green steel market. In fact, the pandemic had helped manufacturers and buyers realize the importance of environment friendly products. Thus, the growth of green steel market emerged and companies as well as government are investing in different projects in the market on producing green steel.

## Competitive Landscape and Recent Developments:

Europe green steel market is concentrated with SSAB, Salzgitter and ArcelorMittal as best positioned, in Europe. Key players of Europe green steel market are:

ArcelorMittal S.A.

Salzgitter AG

SSAB AB

ThyssenKrupp AG

Tata Steel Europe Limited

Tenaris S.A.

Swiss Steel Group (Deutsche Edelstahlwerke Specialty Steel GmbH & Co. KG)

Voestalpine AG

H2 Green Steel

Vanir Green Industries (Blaster Green Steel)

GFG Alliance (Liberty Steel Group Holdings UK Ltd) O-I Glass, Inc.

As the European market transitions there is a clear first mover advantage with SSAB and Salzgitter ahead of peers and aiming to fully shift to green steel by 2030 and 2033, respectively, vs peers' targets of 2050. Notably, this will allow both companies to gain share in premium green products above and beyond their existing market share in standard grades whilst ArcelorMittal and ThyssenKrupp are set to lose market share due to their relatively slower transitions. SSAB has taken this one step further identifying the transition to green steel as an opportunity to take share in high value automotive markets by also investing in new downstream finishing capacity. The key players are constantly investing in strategic initiatives, such as new product launches, introducing their products to emerging markets and more, to maintain a competitive edge in this

market. For instance, in 2022, ArcelorMittal plans to invest US\$100 million. Also, in 2021, Iberdrola & H2 Green Steel signed a green hydrogen deal of US\$2.59 billion. With a capacity to generate 2 million tons of pig iron would be produced & fueled by green hydrogen at the new facility.

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