International Open Seminar on

"Green Steel Production: Sustainable Practices & Carbon Reduction"

Co-located with

MINERALS METALS METALLURGY MATERIALS®

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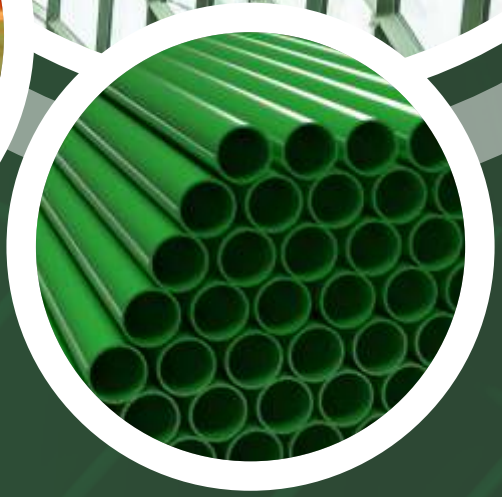
14th International Exhibition & Conference on Minerals, Metals, Metallurgy & Materials

27 - 29 September 2024

Yashobhoomi, Dwarka
New Delhi, INDIA



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A Step Forward the Industry

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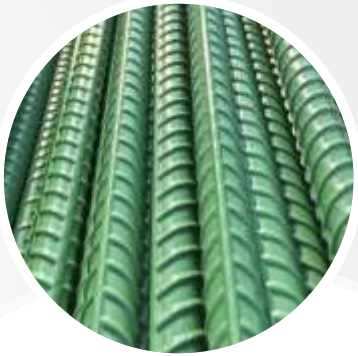
Industry **Outlook**

The Green Steel Market is expected to reach **USD 15412.5 Million in 2030** by growing at a **CAGR of 28.6%**. Major stakeholders in the steel market like Tata Steel, Arcelor Mittal, Salzgitter, Thyssenkrupp, H2 Green Steel, Deutsche Edel Stahlwerke Services, Jindal Steel and Power, United States Steel Corp, Tenaris Hydnum Steel showing positive approach and with reputed brands like Volvo Cars joining the “SteelZero”, the commitment to green steel has been strengthened and will set a strong precedent for the whole industry.

Transitioning from traditional steel production methods to green steel presents several challenges for the Indian steel industry and efforts are needed to be made by private and public partnerships in order to achieve sustainability.

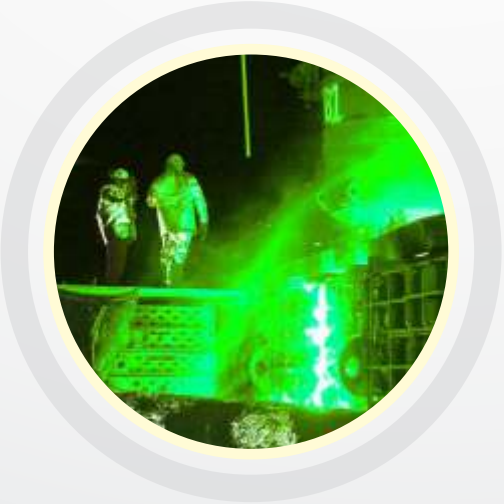
Challenges for the Industry

- Adopting green steel technologies often requires significant upfront investment in new infrastructure and equipment. This includes investments in renewable energy sources, carbon capture and storage (CCS) technology, and more efficient steel making processes such as hydrogen-based reduction.
- Green steel production technologies such as hydrogen-based direct reduction require advanced infrastructure and technical expertise, which may not be readily available in India.
- India's energy infrastructure is still heavily reliant on coal, which poses challenges in sourcing clean energy for steel production.
- Green steel production methods require the acquisition of specific raw materials such as hydrogen, which may not be readily available or affordable in India. Securing a stable supply chain for these materials could be a challenge.
- The Indian steel industry is subject to various regulations and policies related to emissions, environmental protection, and energy use. Transitioning to green steel will require changes to existing regulations and the development of new policies to incentivize and support sustainable practices.
- One concern is whether green steel production methods can remain cost-competitive with traditional steelmaking processes. If the cost of implementing green technologies is significantly higher, it could put Indian steel manufacturers at a disadvantage in global markets.
- Integrating green steel production methods into the existing supply chain and logistics networks may require restructuring and coordination among various stakeholders, including suppliers, transporters, and customers.



Opportunities for the Industry

- Producing green steel can differentiate Indian steel manufacturers in the global market. As sustainability becomes an increasingly important factor for consumers and businesses, green steel products may command premium prices and attract environmentally conscious customers.
- India is the second largest steel exporter which will give us upper hand in more sustainability concerned regions like Japan and Singapore.
- Producing green steel will open up access to markets that prioritize sustainability, such as Europe, where demand for low-carbon steel is growing rapidly due to stringent environmental regulations.
- While the initial investment in green steel technologies may be high, transitioning to sustainable practices can result in long-term cost savings through reduced energy consumption, lower operating costs, and compliance with future regulatory requirements.
- Adopting green steel production methods will enhance the brand reputation and image of Indian steel manufacturers as environmentally responsible companies. This can attract investors, customers, and business partners who value sustainability and ethical business practices.
- Indian steel companies have the opportunity to collaborate with technology providers, research institutions, and government agencies to develop and commercialize innovative solutions for green steel production.
- Green steel production methods often involve recycling scrap steel and using renewable energy sources, resulting in improved resource efficiency and reduced reliance on virgin raw materials.



The **Program**

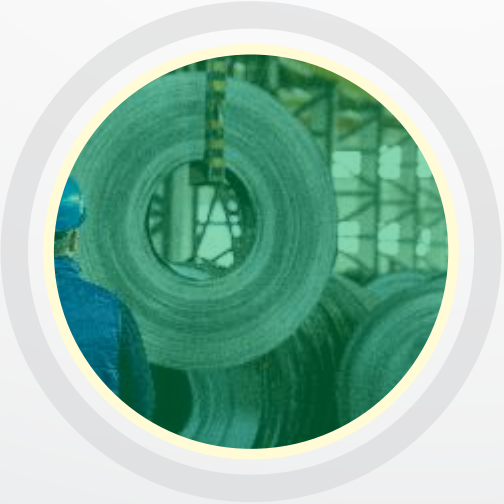
A Initiative with active support of steel manufacturers, processors, quality assurance agencies, policy makers, certification agencies, national & international stakeholders and the value chain experts to impart their insight and offerings on the subject with an aim to bring together experts to share their valuable insight & contribution on the subject.

The **Objectives**

- To educate stakeholders about the concept of green steel and its potential benefits for sustainability and climate change mitigation.
- Engage policymakers and government representatives in discussions on policies, regulations, and incentives to promote the adoption of green steel technologies and encourage investment in sustainable steel production and facilitate the transition to a low-carbon economy.
- To foster collaboration between industry stakeholders, including steel producers, technology providers, and research institutions, to accelerate the development and deployment of green steel technologies.
- Explore opportunities to promote green steel products in the market and increase consumer awareness and demand for sustainable steel.
- To highlight the economic and market advantages of green steel, such as enhanced competitiveness, brand reputation, and access to green financing.
- To create a platform for dialogue and collaboration between different stakeholders, including government agencies, industry associations, civil society organizations, and international partners.

Expected **Outcome**

- Participants will gain a deeper understanding of the environmental challenges associated with traditional steel production and the potential of green steel solutions to address these challenges.
- Dissemination of knowledge, best practices, and innovative technologies in green steel production, fostering learning and capacity building among participants.
- Identification of policy gaps, opportunities, and recommendations to support the transition to green steel, promoting dialogue between policymakers, industry stakeholders, and environmental advocates.
- Exploration of new business models, investment opportunities, and market trends in the green steel sector, leading to increased interest, partnerships, and investments in sustainable steel production.
- Promotion of research and development initiatives, collaboration, and innovation in green steel technologies, driving advancements in materials science, process efficiency, and environmental performance.
- Establishment of networks, partnerships, and collaborations among stakeholders from diverse backgrounds, facilitating knowledge exchange, joint initiatives, and collective action towards sustainable steel production.



Program **Out Line**

Day - 1 **September 27-2024**

09.00 –9.40 am **Delegate Registration,**
Speed Networking Session & Welcome Refreshments

9.45-10.00 am **Exhibition I Visits by the VIPS**

10:00 – 11:30am
Conference Inaugural Session
Greetings and welcoming of VIPs on stage
(Lamp lighting ceremony)

Theme setting:
Keynote Address by Special Invitee:
Special invitees Industry note:
Adress By Guest of Honors:
Address By Chief Guest:

Discussion Points:
- Policy Framework and Government Initiatives to Promote Green Steel Production
- The Importance of Green Steel Production for Sustainable Development
- Decarbonization Strategies for the Steel Industry

(Hi-Tea & Snacks served on the seats)

11.30 - 11.40am **Business Networking Break**

12.00 – 1.30pm
Session 1 – Green Steel Production Processes - Overview and Innovations
Discussion Points:
- Overview of the concept and importance of producing steel with minimal environmental impact.
- Carbon Reduction Techniques: Explanation of various methods used to reduce carbon emissions in steel production, such as hydrogen-based processes, biomass utilization, and carbon capture and storage.
- Renewable Energy Integration: Discussion on integrating renewable energy sources like solar and wind power into steel production processes to reduce reliance on fossil fuels.
- Recycling and Circular Economy: Highlighting the importance of recycling scrap steel and adopting circular economy principles to minimize waste and resource consumption.

(Interaction with Audience and Summarization of Session by the Chair)
(Hi-Tea & Snacks served on the seats)

1.30 – 3.00pm
Session 2 – Market Trends and Opportunities in Green Steel Production
Discussion Points:
- Growing Demand: Highlighting the increasing global demand for environmentally sustainable steel products, driven by consumer preferences, regulatory requirements, and corporate sustainability goals.
- Policy Support: Discussion on government policies and regulations supporting the transition to green steel production, including carbon pricing mechanisms, emission standards, and incentives for clean energy adoption.
- Investment Opportunities: Identifying investment opportunities in green steel production, including funding for research and development, infrastructure development, and capacity expansion.
- Emerging Markets: Exploration of emerging markets for green steel products, such as electric vehicles, renewable energy infrastructure, and sustainable construction projects.
- Supply Chain Integration: Analysis of opportunities for integrating green steel production into existing supply chains, including partnerships with raw material suppliers, manufacturers, and end-users.
- Competitive Landscape: Overview of the competitive landscape in the green steel market, including key players, market dynamics, and strategic alliances shaping the industry.

(Interaction with Audience and Summarization of Session by the Chair)
(Hi-Tea & Snacks served on the seats)

3.00 – 4.00pm
Session 3 – Case Study Presentations: Successful Implementation of Green Steel Projects – Overview, Challenges, Achievement & Lessons Learned
Discussion Points:
- Implementation of Hydrogen-based Steel Production
- Integration of Renewable Energy in Steel Production
- Adoption of Circular Economy Principles in Steel Manufacturing
- Collaboration and Partnerships for Sustainable Steel Production

(Interaction with Audience and Summarization of Session by the Chair)
Monica Bachchan to give mementos to the Panel
(Hi-Tea & Snacks served on the seats)

4.00 – 5.00pm Session 4 - Q&A Session and Wrap-Up

Program **Out Line**

Day-2 September 28-2024

10:30 – 12:00pm

Recap and Introduction to Day 2

Session 1: Future of Iron Making in the Era of Green Steel Production & Sustainable Production Processes for Iron Making

Panel Discussion:

- Emerging Trends in Iron Making: Exploration of innovative iron making technologies and processes that prioritize environmental sustainability, such as direct reduced iron (DRI), hydrogen-based reduction, and electrolytic iron production.
- Environmental Benefits: Discussion on the environmental benefits of green iron making processes, including reduced carbon emissions, energy savings, and lower environmental footprint.

Market Opportunities: Analysis of market opportunities and drivers for green iron making, including regulatory incentives, consumer demand for sustainable products, and corporate sustainability goals.

(Hi-Tea & Snacks served on the seats)

12:00-1.30pm

Technical Session 1: Decarbonization Techniques in Iron Making

Panel Discussion:

- Blast Furnace Retrofitting: Discussion on retrofitting existing blast furnaces with carbon capture and storage (CCS) technologies to capture and sequester carbon dioxide emissions.
- Direct Reduced Iron (DRI): Explanation of DRI technology, which utilizes natural gas or hydrogen as reducing agents instead of coke, resulting in lower carbon emissions and higher energy efficiency.
- Hydrogen-based Reduction: Exploration of iron making processes that utilize hydrogen as a reducing agent, such as direct reduction with hydrogen (H-DRI) or hydrogen plasma reduction, offering the potential for zero carbon emissions.
- Biomass and Biochar Utilization: Overview of biomass and biochar utilization in iron making processes as renewable carbon sources, reducing reliance on fossil fuels and mitigating carbon emissions.
- Electrification of Iron Making: Discussion on electrification technologies, such as electric arc furnaces (EAF) and electrolysis, which use electricity from renewable sources to produce iron with minimal carbon footprint.
- Carbon Capture and Utilization (CCU): Introduction of CCU technologies that capture carbon emissions from iron making processes and convert them into valuable products, such as chemicals, fuels, or building materials.

Technological Integration: Highlighting the importance of integrating multiple decarbonization techniques and technologies to achieve significant reductions in carbon emissions throughout the iron making process.

(Hi-Tea & Snacks served on the seats)

1.30-3.00pm

Technical Session 2: Role of Technology and Innovation in Green Iron Making

Points of Discussions:

- Discussion on the latest technological innovations in green iron making, including process optimization, automation, and digitalization, to improve energy efficiency and reduce carbon emissions.
- Alternative Iron Making Processes: Exploration of alternative iron making processes, such as direct reduced iron (DRI), smelting reduction, and hydrogen-based reduction, which offer lower carbon footprint and higher energy efficiency compared to traditional blast furnace routes
- Materials and Metallurgical Research: Showcase of research and development initiatives focused on developing advanced materials, alloys, and process technologies to enhance the performance and sustainability of iron making processes.

Economic Viability: Discussion on the economic viability of green iron making technologies, including investment costs, operational expenses, and potential revenue streams, to ensure competitiveness and long-term sustainability of green iron making initiatives.

(Hi-Tea & Snacks served on the seats)

3.00-4.00pm **Industry Award Function**

3.00-4.00pm **Closing Remarks and Conclusion of the Conference**

(Hi-Tea & Snacks served on the seats)

Day-3 September 29-2024

11.00 – 1.00pm Networking Meet of Secondary Steel Industry

About us

METALOGIC PMS is a startup launched in 2017 with a mission to provide metalogic or decision making logical support to the Indian & International Steel & Mining Industry.

With over 8 year's experience in organizing steel industry related events and disseminating information through various media, METALOGIC's experienced team will propel this new standalone venture for the success of Indian iron and steel industry.

Market Leader in Creating Dialogue by Holding Webinars & Events for Mining & Steel Industry in India for the last 5 years. Our products are designed to provide an intel, practical solution to various issues related to policies, market, trade, technology or product design.

World Metal Forum (WMF)

WMF has been acting as a think tank and provides new ideas aimed towards achieving excellence in Metal, Metallurgy, Machinery, Manufacturing and allied sectors . It is also a platform for sharing the best practices prevailing in the industry and initiating a meaningful dialogue within, & thereby serving its core objective of achieving excellence in these sectors.

WMF is a mission is to create footprints in the Metal, Metallurgy, Machinery, Manufacturing and allied sectors, to contribute constructively towards the growth of this sector in India as well as globally"

Monica Bachchan (Founder & CEO)
Metalogic Projects Management Services Pvt Ltd
Plot No. C2, Supertech E-Square, Workbox, 15th floor,
Sector 96, Noida, Uttar Pradesh 201303

WORLD METAL FORUM™

SECRETARIAT - INDIA
504, 5th Floor, Mercantile House, 15 KG Marg,
Connaught Place, New Delhi-110001, INDIA
Email: office@worldmetalforum.org

Delegate Registration please contact at

- **Rahul: 7065044004, Rahul@metalogicpms.com**
- **Sourabh: 8587872882 , sourabh@metalogicpms.com**