

Green Steel through Hydrogen Direct Reduction

18th August 2021

5:00 PM to 6:30 PM

Background Note

The Indian steel sector is vital for the growth of India's development and urbanization. It serves as a critical input for various sectors and will play a major role in supporting India's industrial development. Although critical for economic growth, the iron and steel sector is highly energy- and resource-intensive. As such, rapid growth of steel demand using conventional production methods will have significant environmental consequences. India has taken significant steps to improve energy efficiency in the sector by implementing the Perform, Achieve, and Trade (PAT) scheme. However, even with these measures and improvements in energy efficiency, direct emissions from the iron and steel sector are expected to increase by more than three times by 2050. The continued use of conventional production methods will adversely affect the environment. Incremental measures to reduce energy intensity and carbon emissions will not be sufficient. There is a need to examine more radical changes in iron and steelmaking technologies. The use of low-carbon hydrogen for direct reduction, paired with Electric Arc Furnaces (powered by renewable electricity), would be well-suited to meet India's requirements.

The paper - *Green Steel through Hydrogen Direct Reduction: A study on the role of hydrogen in the Indian Iron and Steel sector* is a joint effort by The Energy and Resources Institute (TERI), Primetals Technologies Austria GmbH, Austria, and Siemens India. It provides a techno-economic analysis of the Hydrogen Direct Reduction process, outlines the potential of green hydrogen technologies, and discusses the suitability of this technology in the Indian context. The paper recommends the potential next steps to advance this technology. Hydrogen steelmaking has the potential to drastically reduce CO₂ emissions from primary steelmaking in India, making it one of the first major economies to industrialize without the need to 'carbonize'.

The findings of the paper will be presented in the webinar. This will be followed by a panel discussion with industry experts, who will share their perspectives on the potential role that hydrogen-based steelmaking can play in decarbonizing India's steel sector.

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Agenda

Timings	Particulars
5:00 to 5:10 PM	Initial Remarks: Dr. Vibha Dhawan, Director General, TERI Mr. Gerd Deusser, Executive Vice President, Head-Energy, Siemens Ltd
5:10 to 5:20 PM	Keynote address: Dr. Mukesh Kumar, Director, SRTMI, Ministry of Steel, Government of India
5:20 to 5:35 PM	Background Presentation Mr. Will Hall, Visiting Fellow, TERI
5:35 to 5:37 PM	Release of the paper
5:37 to 6:25 PM	Round table discussion: Moderated by: Mr. Ajay Shankar, Distinguished Fellow, TERI Panelists: <ul style="list-style-type: none"> • Mr. ACR Das, Formerly Industrial Advisor, Ministry of Steel • Ms. Madhulika Sharma, Chief Corporate Sustainability, TATA Steel • Mr. Lokendra Raj Singh, Senior Vice President, Iron, Energy & Environment, JSW Vijayanagar and Chairman, Climate Action Group, JSW Steel • Dr. Rambabu Paravastu, Advisor & Chief Sustainability Officer Greenko Group • Mr. Paul Maleszka, Senior Supply Chain Manager (Global Steel), Group Supply Chain, Lendlease Group, Member, Steel Zero Initiative, The Climate Group Q&A
6:25 to 6:30 PM	Closing Remarks Dr. Sachin Kumar, Senior Fellow, Industrial Energy Efficiency, TERI