

Discussion on Decarbonization challenges and solutions for the Indian Steel industry

Preliminary findings from the project on “Long-term decarbonization strategies for the Indian steel sector with hydrogen as one option”

Tuesday, 13th December 2022 (14:30 - 16:15 IST)



Prof Rangan Banerjee,
Director
IIT Delhi



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Project Reference Number: DST/TMD-EWO/AHFC-2021/2021/184

**Tuesday, 13th December 2022,
14:30 PM – 16:25 IST (Virtual Mode)**

Tentative Agenda

13th December 2022 (Tuesday), 14:30 PM – 16:25 PM, Virtual Webinar

Time	Session Details
14:30 – 14:35 IST	Welcome and opening remarks by Dr Jyoti K Parikh , Executive Director, IRADe
14:35 – 14:45 IST	Opening Address by Prof Rangan Banerjee , Director, Indian Institute of Technology, Delhi
14:45 – 14:55 IST	Keynote Address by Ms Neha Verma , Director, Ministry of Steel, Government of India
14:55 – 15:45 IST	Technical Session: Chaired and Moderated by Dr Kirit Parikh , Chairman, IRADe
14:55 – 15:05 IST	Chairman’s opening remark
15:05 - 15:15 IST	Address by Mr. Arpan Gupta , Additional Director & Head, Mines, Metals & Cement, FICCI
15:15 - 15:25 IST	Presentation by Dr Anjana Das on Indian steel industry, and its future prospects and decarbonisation challenges
15:25 - 15:35 IST	Presentation by Dr Deepak Sharma on Steel production technologies: Current and future technologies
15:35 – 15:45 IST	Presentation by Dr Anjana Das on Hydrogen use in Steel Industry
15:45 – 16:15 IST	Panel Discussion on Decarbonization pathways for Indian steel industry
	Session Chair Dr Kirit Parikh , Chairman, IRADe Panellist <ol style="list-style-type: none"> Mr. Parmjeet Singh, Additional Industrial Adviser, Ministry of Steel, Government of India Mr. V R Sharma, Vice- Chairman, Jindal Steel and Power Ltd. Mr Anurag Pandey, Hydrogen Value Chain, Reliance Industries Ltd Mr Venugopal Mothkoo, Sr Specialist/Director, NITI Aayog, Govt of India Mr Will Hall, Clean Energy Technology Analyst, IEA, Paris
16:15 – 16:20 IST	Q & A Session and Feedback
16:20 – 16:25 IST	Closing Session and Vote of Thanks: Dr. Jyoti Parikh , Executive Director, IRADe

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Discussion Agenda (Draft)

Globally, the iron and steel sector is currently responsible for about 8% of final energy demand and 7% of energy sector CO₂ emissions. The steel sector is one of the hard to abate sectors and has recently received special attention owing to the potential use of low-carbon hydrogen (green and blue) to reduce its fuel combustion and process-related carbon emissions.

India is world's second largest steel producer, with crude steel production capacity of 142.7 million tonne (mt) in 2020. According to the India's third Biennial Update report, iron and steel industry is fifth largest GHG emitter. With the growing demand for steel, emissions are expected to increase in future.

Integrated Research and Actions for Development (IRADe) in partnership with FICCI is carrying out a study on **“Long-term decarbonization strategies for the Indian steel sector with hydrogen as one option”**. Decarbonising Indian steel industry is challenging as substantial amount of new capacity needs to be built to meet the growing steel demand whereas zero-carbon steel making technologies are expected to be available at commercial scale not before 2030. According to an IEA (International Energy Agency) study, the new capacity additions projected to take place over the next 10 years are expected to account for 40% of the country's steelmaking capacity still operating in 2050, barring any early retirements. In addition, India's existing blast furnace stock is relatively young with average age of 15 years. In developing a long-term decarbonization pathway, the IRADe study is considering all possible upcoming partial and total abatement technologies which can supply least cost steel to fuel country's economic growth.

Recent attention has turned to the use of green hydrogen as both the fuel and the reductant of the iron ore (HYBRIT (Hydrogen Breakthrough Ironmaking Technology)). It could emit as little as 0.1 tonnes of CO₂ per tonne of steel, as compared to average 2.2 – 2.4 tonnes per tonne of crude steel in conventional route. However, at present HYBRIT increases the cost of steel production by 20-30%. Production of green hydrogen is also expensive, however, cost is expected to decline with the improvement in electrolyser technologies.

The agenda of the discussion is to discuss the preliminary findings of the project and gain feedback from the policymakers, industry experts and stakeholders. We will be having three technical presentations followed by a panel discussion.

For registration details, contact Deepak Sharma, Research Analyst, IRADe dsharma@irade.org or +91-9769474360 and and **Mr. Mohit Kumar Gupta**, Research Analyst, IRADe mohitgupta@irade.org

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