

Use of hydrogen in decarbonising steel industry explored

Press Release

For Immediate Release

Bengaluru, 16 November 2024

Industry leaders pioneering the use of hydrogen to decarbonise the steel industry met on Monday in Delhi to discuss its potential and challenges. The event was organised by the Center for Study of Science, Technology and Policy (CSTEP), a science and technology-based think tank, to launch its report Advanced Process Simulation Modelling for Hydrogen Application in Steel and Cement – A Technical and Economic Assessment.

The report comes at a time when hydrogen's application in decarbonising industries is gaining traction and in the backdrop of the Ministry of Steel's recently released green steel taxonomy, which provides a framework to classify steel based on its emission intensity.

Speaking at the event, Mr Deependra Kashiva, Director General, the Sponge Iron Manufacturers Association, pointed out that India is the first country to define green steel and to come up with a taxonomy.

'The challenge for the industry is to translate tonnes of CO₂ per tonne of finished steel as a unit of interest and apply it practically around the diverse number of products', he said, during the panel discussion organised as part of the event.

Mr Parmjeet Singh, Director, National Institute of Secondary Steel Technology, welcomed the move by the Ministry saying that it would pave the way for industries to adopt clean and green technologies.

Decarbonising hard-to-abate industries such as steel and cement is crucial to help India achieve its greenhouse gas (GHG) emissions targets. Using hydrogen as feedstock and fuel has great potential to help decarbonise these industries.

The report by CSTEP examines the potential role of hydrogen application in decarbonising the steel and cement industry, which contribute to about 11% and 7% of global CO₂ emissions, respectively. The study provides a series of options that can be incorporated alongside hydrogen to further amplify emissions reduction. Further, it outlines proven ways of blending hydrogen with other fuels in cement manufacturing to increase the share of alternative fuel resources and reduce coal dependency.

The report also proposes improvements and policy measures to aid hydrogen use in steel and cement manufacturing units. These include green steel taxonomy, innovative business models to reduce the renewable electricity tariff for electrolyzers used in manufacturing hydrogen, pull mechanisms (such as advanced market commitments), energy efficiency measures, and R&D-based next-generation technologies. However, the study highlights that the price of hydrogen will need to fall significantly for its greater adoption in steelmaking.

The full report is available [here](#).

For more details and interviews, please write to us at cpe@cstep.in

For more information on our projects, follow us on our socials:



About CSTEP: CSTEP is a not-for-profit research organisation with a mission to enrich policymaking with innovative approaches using science and technology for a sustainable, secure, and inclusive society. Our interdisciplinary research encompasses diverse fields such as energy, urban development, climate, and air pollution.

About Hydrogen: Our research is focussed on the application of hydrogen as a blended fuel in mobility and city gas distribution networks. We are involved in devising hydrogen adoption strategies for hard-to-abate industries and are developing computational tools to identify suitable sites for setting up hydrogen production units based on interdisciplinary frameworks.