Steel SCENARIO

A JOURNAL ON FERROUS AND ALLIED SECTORS

June 2023

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Sakuntala, Editor & Publisher

Net-zero steel: The way forward

The Indian steel ministry has approved 13 task forces to define the roadmap for green steel, in a step towards lowering carbon emissions from the industry. Whether it is future energy and transport systems, protection from the impacts of natural disasters, climate-resilient infrastructure, construction and housing, low-carbon manufacturing and agriculture, steel is at the heart of delivering solutions. The rising demand for greener approaches creates an imperative for the industry to seize the moment, adopt new mindsets, and set standards for the transition to a greener future. Increasingly, circular economic approaches are prolonging steel's useful life. The steel industry is an integral part of the circular economy – with our material ideally suited to be remanufactured, reused and ultimately recycled.

India aims to be carbon neutral by 2070. The average carbon emission intensity of the Indian steel industry has been reduced from around 3.1 t/tonne of crude steel (T/tcs) in 2005 to around 2.6 T/tcs by 2020, according to data from the country's steel ministry. The country has set a target to cut total carbon emissions by 30-35% below 2005 levels by 2030. Under the Paris Agreement on climate change, governments pledged to keep global warming below 2°C above pre industrial levels, ideally below 1.5°C. To achieve that goal, net human emissions of greenhouse gases (GHG) must fall to zero by 2050. In the construction sector, massive changes are required to align with that pathway. However, a significant step forward would be to shift from high-CO2 steel to near-zero-emissions steel. Despite initial signs of slow change, experts have little illusion that India's industrial corporates will continue to rely on emission-intensive fossil fuels for some time, regardless of net zero targets. The steel and cement industries in particular are aware that decarbonisation is headed their way, and there is some trepidation about rising operating costs.

The uptake of net zero targets among India's industrial giants is unlikely to translate into rapid emissions reductions given a lack of adequate policies, funding and regulatory oversight. Gradual change could be afoot, as companies are increasingly aware that decarbonisation is headed their way, and policymakers debate first steps towards the country's official target to become net zero by 2070.There are initial signs that green hydrogen, which is considered key for green steel production, might eventually become available in India.

Emission-free coal production?

In the case of fossil fuel producers, net zero targets appear even more incongruous. Government-owned mining company Coal India, the largest coal producer in the world, says that better energy efficiency and switching to cleaner transport alternatives will help its emissions fall to net zero by 2024. But the company excludes so-called scope 3 emissions from its target, which result from burning its coal. Instead, the target only refers to its own emissions. This is why Coal India says its net zero commitment aligns with plans to increase coal production from 620 million tonnes last year to nearly a billion tonnes by 2024.

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Emissions in the construction value chain, which can reduce the appetite for investment in near-zero-emissions steel. The construction industry is at a crossroads. Rising demand for new approaches and the emergence of viable solutions (albeit at a cost) put the onus on companies and stakeholders to accelerate the process of greening the industry. Green technologies could enable significant reductions by 2030 and almost complete abatement by 2050. However, progress is contingent on collaboration through the value chain, from steel production to choices regarding building design, architecture, and construction. A concerted effort across a range of levers could reduce embodied carbon in a commercial office building by more than two-thirds. Not all actors in the construction value chain are aware of construction embodied carbon footprints, the GHG emissions associated with specific materials, or the near-term options for addressing embodied carbon. Market participants should spread the word about carbon footprints, steel carbon footprints, and potential decarbonization solutions. Platforms such as conferences, training sessions, and roundtables would all serve the purpose. Discussions should be backed by science- based assessments of quality and performance, case studies, and technical data. The imperative, therefore, is for the industry to seize the moment, adopt a radical mindset, and prepare for the transition to a greener future.

S.Chanda

Sakuntala Chanda

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