Tata, JSPL among steel-makers carrying out pilot projects to cut carbon emissions

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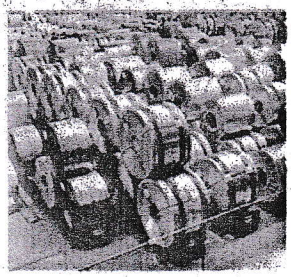
To reduce emissions and carbon footprint, at least five pilot projects across three integrated steel mills and one stainless steel player are underway, with all of them experimenting with alternative fuels, including green hydrogen and biochar. The companies include Tata Steel, Jindal Steel Works (JSW), Jindal Steel and Power Ltd (JSPL), and Jindal Stainless Ltd (JSL), the only stainless steel player that has taken up such a pilot.

Tata Steel has commissioned a 5-tonnes-per-day (tpd) carbon capture plant at its Jamshedpur works. Jindal Steel Works (JSW) has implemented carbon capture and storage facility with 100 tpd capacity at its Direct Reduced Iron (DRI) plant in Dolvi. The captured carbon is to be utilised in food and beverages industry.

Jindal Steel and Power Ltd (JSPL) has set up a 3,000 tpd-capacity carbon capturing unit at Angul, Odisha. Tata Steel has successfully injected around 6 kg of hydrogen per tonne of the hot metal resulting in 7-10 per cent of CO_2 emission reduction per tonne of crude steel (tcs); Jindal Stainless Ltd has commissioned a long-term offtake green hydrogen plant with the production capacity of 78 tonnes per year of green hydrogen, to be used for the annealing process.



In a written response in Parliament, the Union Minister of State for Steel, Bhupathiraju Srinivasa Varma, said, "there are currently no large-scale implementations, but pilot projects have been established."

"To decarbonise steel sector in the country in the short term (FY30), reduction of carbon emissions in steel industry through promotion of energy and resource efficiency and enhanced use of renewable energy are the focus," he said adding that for the medium term (2030-2047), green hydrogen-based steel making and carbon capture, utilisation and storage are the focus areas.

ENERGY EFFICIENCY

Tie-ups have also been entered into, for instance, with Japan's New Energy and Industrial Technology Development Organisation (NEDO); four model projects for energy efficiency improvement have been implemented in steel plants.

The projects so implemented include use of Blast Furnace Hot Stoves Waste Gas Recovery System at Tata Steel; Coke Dry Quenching (CDQ) at Tata Steel Limited; Sinter Cooler Waste Heat Recovery System at RINL and Energy Monitoring and Management System at SAIL.

So far, Indian steel sector has brought down carbon emissions from around 3.1 tonnes of CO_2 per tonne of crude steel in 2005 to around 2.5 tonnes of CO_2 per tonne of crude steel in 2022.