10-Tonne-Per-Day Hydrogen Facility in Odisha

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Why in news?

Tata Steel is planning to set up a 10-tonne-per-day (tpd) hydrogen production facility at its Kalinganagar steel plant in Odisha, as part of Tata Steel's efforts to achieve net-zero emissions by 2045.

- **Objective** – To decarbonise steelmaking by harnessing gases generated during production.
- **Partnership** – Tata Steel has partnered with Houston-based Utility Global to undertake joint front-end engineering and design (FEED) studies, a first of its kind in the country.
- **Converting steel plant gases into hydrogen** – The facility will use Utility Global's proprietary *H2Gen technology* to produce high-purity hydrogen from a mix of blast furnace gas and basic oxygen furnace (BOF) gas.

*A **blast furnace** is a metallurgical furnace used to produce iron from iron ore using coke and hot air.*

- It would be Utility Global's largest industrial H2Gen deployment announced globally and its first announced project in India.
- The technology has been successfully tested using actual blast furnace gas at a steel producer's facility in Canada.
- **Hydrogen production without electricity** – The technology will utilise residual energy present in steel plant off-gases to split water and generate hydrogen without using electricity, offering a low-carbon pathway for steel production without requiring a complete overhaul of existing plant infrastructure.
- **Reducing emissions** – The hydrogen produced is envisaged to be injected back into the blast furnace, replacing a portion of the carbon-intensive fuel and reducing emissions from the ironmaking process.
- **Supporting carbon capture** – The process also generates a concentrated stream of carbon dioxide, which can simplify and reduce the cost of carbon-capture efforts.
- **Previous decarbonisation initiatives** – The company has already
    - Demonstrated hydrogen, coal-bed methane, and biochar injection in blast furnaces.

- Commissioned India’s first blast-furnace-gas-based carbon capture plant at Jamshedpur in 2021.
- Commissioned a coke oven gas injection project at its Meramandali plant in Odisha, a first-of-its-kind initiative in the Indian steel industry.



Reference

[Business Standard | Tata Steel plans hydrogen facility at Kalinganagar to cut carbon emissions]

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