

H2STEEL enters final phase to deliver green hydrogen and biocoal solutions for steel industry decarbonisation

- H2STEEL develops innovative technology to produce green hydrogen and bio-coal from biogenic waste.
- The project advances steel decarbonisation through circular and sustainable solutions.
- In its final phase, key results will be shared through workshops and a special session at EUBCE 2025.

H2STEEL is actively disseminating its innovations to accelerate the transition towards sustainable steelmaking in Europe

13 May 2025 – The Horizon Europe project H2STEEL is entering its final phase, marking a key milestone in its mission to support the green transition of the European metallurgy sector. In the coming months, the consortium will host a series of workshops and dissemination activities to present its findings and demonstrate its impact on steel decarbonisation.

The upcoming workshops include:

27 May 2025, 11:00–13:00 CEST (Online) - “Valorizing biomass and bio-waste: Biocoal and Critical Raw Materials in the Framework of the H2STEEL Project”

This [online session](#) will explore the role of biowaste in the circular economy, focusing on the recovery of critical raw materials and biocoal production within the H2STEEL framework.

9 June 2025, Valencia (On-site at the European Biomass Conference and Exhibition -EUBCE-) Joint Workshop: H2STEEL & BIORECAST – “Green H₂ and Circular Bio-Coal from Biowaste for Cost-Competitive Sustainable Steel”

This in-person session will present the scientific and technical foundations of H2STEEL’s approach. The H2STEEL team will lead a dedicated session at EUBCE covering:

- Introduction to the H2STEEL project
- Decarbonisation of the steel manufacturing sector
- Methane catalytic pyrolysis for hydrogen and carbon recovery
- Biowaste pyrolysis and chemical leaching for bio-based catalyst production
- Design, construction and testing of a new proof-of-concept system
- Catalytic biomethane pyrolysis over biowaste-derived catalysts

At the heart of H2STEEL lies an innovative, **circular approach to producing green hydrogen and biogenic carbon from biowaste**. This pioneering process combines methane catalytic pyrolysis and the development of sustainable, low-cost catalysts derived from digestate—a by-product of anaerobic digestion. The result is a competitive route to clean hydrogen and bio-coal, both crucial components for decarbonising steel manufacturing.

The project, **coordinated by the Politecnico di Torino** and funded under the European Innovation Council (Grant Agreement No. 101070741), brings together **six partners from four countries**.

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Their collaborative work supports the EU Green Deal and Climate Target Plan 2030, as well as the long-term goal of climate neutrality by 2050.

In March 2025, the consortium met in Torino for a General Assembly where partners reported significant progress on biowaste conversion, catalyst optimisation, and pilot system assembly. Notably, the project's **proof-of-concept (PoC) system, hosted at RE-CORD**, is nearing completion and will serve as a key demonstration of H2STEEL's feasibility and scalability.

By combining scientific innovation with circular economy principles, **H2STEEL contributes directly to the EU Emission Trading Scheme (ETS)**, enabling steelmakers to reduce their greenhouse gas emissions while fostering industrial symbiosis. Preliminary life cycle assessments show **potential CO₂ emissions reductions of up to 42%**.

As H2STEEL prepares to **conclude in September 2025**, the consortium remains focused on refining its technical assessments, disseminating results to stakeholders, and securing pathways for future exploitation. A **patent** has already been filed for key technologies, and market analyses suggest strong uptake potential within the steel and hydrogen sectors.

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