H2steeL

H2STEEL offers an innovative solution to the European Commission's Net-zero emissions challenge. For this purpose, **H2STEEL** will combine the conversion of biowaste and bioCH4 through innovative catalyzed pyrolysis with chemical leaching, to fully convert biowastes into Green Hydrogen, Green Carbon (bio-coal), and recovery of Critical (inorganic) Raw Matverials (CRMs). This solution supports **the green transition of the metallurgy sector.**

The project utilizes a novel reactor design to carry out **biomethane pyrolysis** on a bed of bio-coal, serving as a low-cost, highly resistant catalyst for methane cracking. The continuous renewal of the catalyst ensures **efficient hydrogen generation,** while the spent bio-coal is repurposed as a **substitute for metallurgical coke in steel-making,** contributing to net GHG reduction and EU ETS compliance. This approach eliminates the need for catalyst regeneration, **reducing CO2 emissions** released into the atmosphere.



3 Years

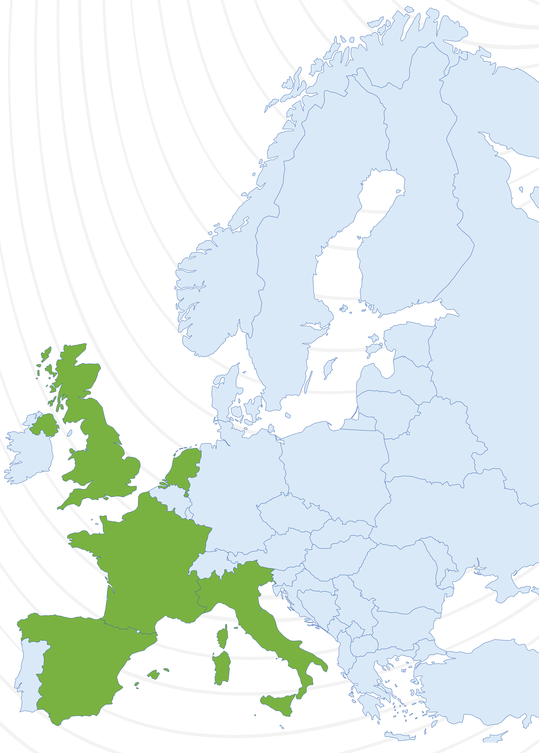
2,368,910 €

7 Partners

5 Countries

OBJECTIVES

- **Contribute to the EU Green Hydrogen economy and the decarbonization of the European steel sector**
- **Develop efficient energy extraction methods from biomass and methane to minimize waste and environmental impact.**
- **Develop innovative processes for the efficient and sustainable production of Green Hydrogen from renewable sources.**



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