

COUPLED

 coupled-horizoneurope.eu

CO₂ Utilisation Process via Looping tEchnology Demostration

Accelerating Europe's Path to Climate Neutrality

- Achieving net-zero emissions requires a deep transformation of the energy system
- Carbon Capture, Utilization and Storage (CCUS) could deliver up to 20% of global CO₂ reductions by 2050
- In Europe, >450 Mt of CO₂ per year is expected to be captured
- A significant share of captured CO₂ will be reused for low-carbon fuels and materials
- Innovative CO₂ utilization technologies must be validated at industrial scale



The COUPLED Solution

- It combines green hydrogen, biogas, recycle CO₂ and industrial waste gas for cost effective renewable fuels
- It enables circular carbon use across multiple energy-intensive sectors
- It builds on advanced chemical looping and membrane technologies
- It converts biogenic and non-biogenic CO₂ into sustainable liquid fuels



Project Objectives



- Design, scale up and demonstrate chemical looping processes converting H₂ or biogas with recycled CO₂ into syngas
- Convert syngas into carbon-neutral fuels, including Sustainable Aviation Fuel (SAF)
- Deliver TRL7 validation and techno-economic, life-cycle and sustainability assessments
- Support rapid scale-up and market uptake through robust business models



Contact us

PROJECT COORDINATOR
Vincenzo Spallina
 The University of Manchester
vincenzo.spallina@manchester.ac.uk

Follow us

 [coupled-project](https://www.linkedin.com/company/coupled-project)
 [COUPLEDproject](https://twitter.com/COUPLEDproject)



Funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.