

RECOAL: SWISS CARBON REMOVAL PROJECT



Project Partner: recoal AG	Project Country: Switzerland	Project Region: Zurich
Project Type: Biomass	Certification Standard: Rainbow	CO₂ Impact in Tons per Year: 414tCO ₂

Description of the project:

Switzerland faces a critical need for scalable carbon removal solutions to manage biomass residues that would otherwise release CO₂ and methane during natural decomposition. Recoal is one of the first companies to address this problem with a novel Biomass Carbon Removal and Storage (BiCRS) approach based on Hydrothermal Carbonization (HTC). This process mimics natural coal formation by heating biomass under pressure to create hydrochar, a stable, carbon-rich material that locks away atmospheric carbon for centuries. The resulting hydrochar is safely stored in near-surface or deep geological layers, ensuring permanent and secure carbon removal.

Beyond direct climate mitigation, the project promotes a circular economy by recovering essential nutrients like phosphorus and nitrogen for agricultural reuse. By collaborating with leading Swiss universities and institutions, Recoal not only removes CO₂ but also helps build the engineering expertise required to reach net-zero targets.

Key outcomes:

- Guarantees durable carbon removal via hydrochar stored in anoxic geological formations, with lab tests showing 98% carbon retention after 100 years and potential permanence exceeding 1,000 years.
- Establishes a high-efficiency residue-to-value pathway that converts biomass into stable carbon using 100% renewable Swiss energy.
- Delivers circular co-benefits through nutrient recovery, local green jobs, and partnerships with Swiss research institutions to advance BiCRS technology.



Biomass residues as feedstock for hydrochar



Feedstock for hydrochar

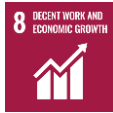


Biomass residues

Supported SDGs



Improves HTC energy efficiency to cut process emissions per tonne of hydrochar.



Creates inclusive green jobs through local hiring and technical training partnerships.



Transforms biomass into stable hydrochar, converting neglected residue streams into high-integrity climate assets.



Collaborates with academia, industry, and civil society to develop and scale HTC-based.