



*Fair Innovative Technologies for
the Green and Circular Economy*

HBI Urban Circular Biorefinery



Driving partner for change

HBI is an Italian high-innovation company and promoter of the **Circular Urban Biorefinery model** — a new frontier in **wastewater treatment**, where sludge is transformed into valuable resource, renewable energy, and water, turning treatment plants into a pillar of European circular economy.

Since 2016, we have been developing **engineering** and **research solutions** that transform wastewater treatment plants into strategic water and energy sources, serving local communities and the circular economy.

Thanks to a **multidisciplinary team** with expertise in plant engineering, thermochemical processes, and international projects, we design modular, scalable solutions ready to be integrated into both industrial and municipal systems — supporting the ecological transition in full compliance with the latest European directives.

Investors

NovaCapital



Co-funded by
the European Union



VISION

Transforming wastewater treatment plants into strategic circular ecosystems that generate renewable energy, produce clean water, and recover critical raw materials — paving the way for a resilient, equitable, and sustainable future.

MISSION

We provide wastewater treatment plants with patented and innovative sludge valorization technologies that enable the creation and integration of new circular European value chains. Through institutional and industrial partnerships, we are building a new concept of the wastewater treatment plant.

Value proposition



Full turnkey system



Cost Efficiency



**Recovery of materials
and energy**

HBI technology

HBI technology is based on the integration of hydrothermal carbonization (HTC) and gasification processes.

HBI four international patents provide operators with the assurance of an exclusive, safe technology, fully compliant with the latest European regulations and ESG standards, while ensuring investment protection, reliability, and both economic and strategic returns.

By adopting HBI technology, plant operators position themselves as leaders in the circular transition, transforming their facilities into models of innovation, energy independence, and true sustainability — becoming key players in a new European ecosystem of industrial symbiosis.

Confirmations and Validations



ETV
RINA 2022

ECOMONDO
The green technology expo.

**Award for
Green
Innovation**
Ecomondo
2023



**Seal of
Excellence**
EU
Commission
2024



**Most
Private
Investment**
NOI
Techpark
2024



**Eni Joule for
Entrepreneurship**
Eni Awards 2024

Wastewater sludge management

HBI technology is designed to adapt to different types of sludge, ensuring maximum recovery efficiency at all times.

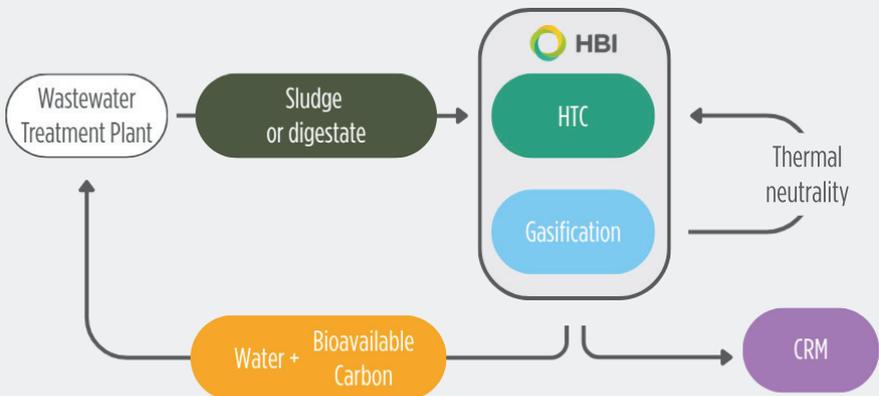
We can treat:

- **Municipal sludge**, both dried and dewatered — including digested matrices — optimizing volume reduction and resource recovery.
- **Industrial and pharmaceutical sludge**, characterized by a high carbon content (>20–25%), which can be safely and efficiently valorized through the HBI process, reducing both environmental impacts and disposal costs.

Our solution can be integrated with anaerobic digestion, enhancing biogas production.

Thanks to this flexibility, HBI provides an effective solution for both municipal and industrial plants, meeting diverse management needs.

How it works



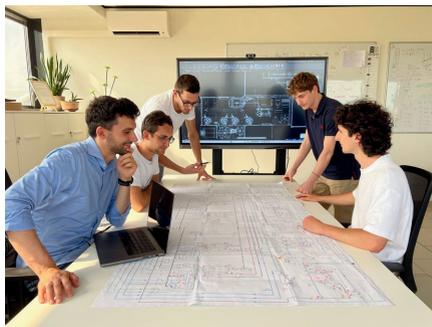
Why choosing HBI

- **Residual sludge reduction:** over 90% decrease in the quantity and weight of waste to be disposed of, leading to significant reductions in transport and disposal costs.
- **On-site energy recovery:** valorization of the energy contained in sludge to produce electric and thermal energy for self-consumption, reducing dependence on fossil fuels and promoting the energy neutrality of the treatment plant.
- **Water recovery:** reuse of over 85% of the water contained in treated sludge, reintroduced into the purification process for a more circular and efficient use of water resources.
- **Removal of emerging micropollutants:** elimination of microplastics, antibiotics, organic molecules, and biological agents, improving treatment quality and safety.
- **Valorization of critical raw materials:** recovery of nutrients as circular resources (subject to End-of-Waste qualification).
- **Alignment with European directives:** fully consistent with European circular economy, sustainability, and decarbonization goals.

Certifications



Inside HBI





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