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Startup Of The Week: TreaTech

Switzerland's TreaTech uses its patented catalytic hydrothermal gasification (cHTG) technology to convert waste streams that are usually incinerated into integral products, such as clean water for industrial use, minerals like phosphorous, nitrogen and potassium used for fertilizer, and methane-rich renewable gas that can be used as an onsite energy solution or injected into the grid network. The aim is to help corporates to become more sustainable and turn cost centers into new revenue streams.

"We give our clients access to the value of their waste," says TreaTech CEO Frédéric Juillard.

TreaTech reduces the carbon footprint of the waste disposal process by eliminating any form of off-site transportation of waste, he says. The Swiss scale-up, which was spun out of the Swiss Federal Institute of Technology (EPFL) in Lausanne in 2015, aims to build its modular waste treatment units, which can process three to five tons of waste per hour per module, next to its clients' facilities. "Our technology is able to convert over 90% of organic carbon of any waste product into pollutant-free, methane-rich gas," says Juillard. "This gas can be used to power our waste treatment process in a circular way, and the remaining gas can be injected into the grid network, stored or used to power our customer's other on-site industrial processes." The process not only replaces the use of fossil fuels, mitigating climate change, it also supports the circular economy by recovering minerals that can be transformed into fertilizer, and clean water which can be re-used on- or off-site, making it a closed loop waste treatment solution, he says, and a potential source of revenue.

"Today we focus on customers in the food and beverage, chemical and pharmaceutical sectors as the cost of waste disposal in these sectors is expensive," says Juillard. The company plans to later expand into other sectors, including municipal waste.

TreaTech says the robustness of the technology enables treat a wide range of waste. In the case of a waste chemical solvent, the company says its technology can produce 50 GWh of energy per year in the form of methane and capture 3300 t/year of CO_2 by treating 6000 t/year of that category of waste. When treating sewage sludge, compared to mono-incineration, which is the most common disposal solution, with three times less space, the company says its product is able to recycle up to 95% of the waste value and emit 94% less CO_2eq.

What's more, TreaTech's process conditions blast viruses, bacteria, as well as micro-pollutants from the water it treats so that 90% recovery of water can be reused, says Juillard.

The technology can produce energy at prices as low as $40 per MWh as opposed to other types of gas production such as anaerobic digestion, pyro gasification and power to gas which cost at least three times more.

Competitors include The Netherlands' SCWS, which uses a centralized and non-catalytic approach to transform waste into renewable gas.

TreaTech raised 9 million Swiss francs in 2023 from investors Engie New Venture, the venture arm of the French power utility, Montrose Environmental Group, the EIC Fund, petrochemical engineering service company Sipchem Europe, CMA CGM Fund for Energies, and Swiss gas company Holdigaz.

It is currently building a demonstration unit for its first customer in Switzerland

The company was selected for the SET100 2024 list. Start Up Energy Transition (SET), which is organized by the German Energy Agency and the World Energy Council featuring the top 100 start-ups working in clean energy and climate tech to deliver the energy transition. The Swiss scale-up was also selected to participate in Cohort 5 of the 100+ Accelerator organized by AB InBev, the Coca-Cola Company, Colgate-Palmolive, and Unilever. It was one of the winners of the Sustainable Industry Challenge organized by Chemport Europe and in 2023 was awarded the Solar Impulse label, in recognition of its environmental and economic efficiency, by the Solar Impulse Foundation.

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