



Haffner Energy brings the cost of renewable diesel and SAF closer to that of fossil fuels with SB-HEFA

Vitry-le-François, France – September 22, 2026, 8:00 am (CEST)

Haffner Energy launches SB-HEFA (Solid Biomass to HEFA), an innovative process for producing renewable diesel and SAF based on its proprietary thermolysis technology, which directly converts solid biomass into liquid without going through syngas. With feedstock available at less than 20% of the cost of the oils used in HEFA/HVO pathways, together with a very short industrial process chain and improved energy efficiency, Haffner Energy is targeting an approximately 50% reduction in the levelised cost of production (LCOE). SB-HEFA is thus reshaping the economics of the SAF and renewable diesel markets.

Haffner Energy's thermolysis technology already generates oil, which is immediately converted into non-condensable gases in the process used to produce syngas, hydrogen, methane or methanol. The SB-HEFA process eliminates the reforming step used to convert the oil into gas. Instead, the thermolysis oil is extracted and stabilised through immediate cooling, before undergoing filtration followed by hydrodeoxygenation using proven technologies from the HEFA industry.

"The strength of SB-HEFA lies in combining our existing core technology with a simple, already industrialised conversion chain. By radically transforming the economics of renewable diesel and SAF, SB-HEFA creates the conditions for their large-scale deployment. This represents a paradigm shift for both markets," said Philippe Haffner, Chairman and Chief Executive Officer of Haffner Energy.

Several major players in the aviation ecosystem have already entered into discussions with Haffner Energy regarding SB-HEFA.

Renewable diesel, which relies on the same technology, is **notably one of the key pillars of the Multi-Energy Hubs** being developed in Canada with Mundi Énergies.

A radically different economic equation

Feedstock is by far the largest cost component in the production of HEFA fuels (SAF and renewable diesel). In 2026, used cooking oil (UCO) trades in Europe at around €1,000 to €1,200 per tonne¹, equivalent to €100 to €120/MWh of primary energy. **By contrast, the residual solid biomass used to feed SB-HEFA is typically available at between €10 and €30/MWh, representing a cost that is, on average, five times lower.**

SB-HEFA also provides a radically more direct, simpler and more cost-effective route to SAF production than alternative technologies: converting solids directly into liquids without going through a gas phase. Haffner Energy therefore estimates that the CAPEX of an SB-HEFA facility should be approximately **one-third** that of a solid-biomass-to-liquid-fuels conversion chain based on Fischer-Tropsch or methanol synthesis, while also delivering improved energy efficiency.

¹ Fastmarkets, Used Cooking Oil (ISCC, DDP Northwest Europe), H1 2026.

Based on its techno-economic model, Haffner Energy is therefore targeting an approximately 50% reduction in the levelised cost of production of renewable diesel and SAF compared with other pathways, including HEFA.

Renewable diesel: SB-HEFA's first market

Haffner Energy will initially focus the industrial development of SB-HEFA on renewable diesel. Diesel accounts for approximately 34% of refined petroleum products², compared with 9% for kerosene, making it a market nearly four times larger by volume.

Renewable diesel and SAF are two closely related fuels produced through the same conversion chain. Renewable diesel, however, is subject to significantly fewer technical and regulatory constraints than SAF, enabling faster market access.

Unlike conventional biodiesel (FAME), renewable diesel is a hydrocarbon that is chemically very similar to fossil diesel and can therefore be used as a direct substitute.

SB-HEFA aims to bring its cost significantly closer to that of fossil diesel. Its potential markets are substantial, including heavy-duty road transport, agricultural and construction machinery, rail, maritime transport and power generation.

Haffner Energy plans to commission a first complete industrial demonstrator as early as 2027/2028, while non-hydrotreated oil can already be produced today at its Marolles site.

SAF: 2030 is already here

Global SAF production still accounts for only 0.6%³ of kerosene consumption, while its cost is currently two to three times higher⁴. HEFA is by far the leading commercial SAF pathway today, but its development is constrained by the availability and cost of oils and fats. SB-HEFA aims to change this equation by providing access to solid biomass feedstocks that are far more abundant and several times less expensive.

"The main challenge facing SAF today is economics," said Marcella Franchi, Business Development Director at Haffner Energy. "The key is to overcome the barrier of its high cost while broadening access to sustainable feedstocks that are available at scale. SB-HEFA is specifically designed to address both challenges: to bring the cost of SAF significantly closer to that of fossil kerosene, thereby making the blending targets set by governments and international institutions achievable."

Haffner Energy intends to initiate the ASTM qualification process for the SB-HEFA pathway to SAF production, drawing in particular on the precedent set by HC-HEFA, the first pathway to benefit from the ASTM D4054 accelerated evaluation process ("Fast Track") prior to its incorporation into ASTM D7566.

The objective is to enable the commercial deployment of SB-HEFA in aviation from 2030. This timeframe coincides with the increase in the minimum SAF blending mandate in Europe to 6%⁵.

Selling equipment and licences simultaneously

SB-HEFA forms part of Haffner Energy's technology licensing business model, developed alongside its equipment supply activities, notably illustrated by the CORE100 programme. While CORE100 draws on the Company's industrial capacity and generates revenue through equipment sales, SB-HEFA will primarily generate licensing revenue without placing significant demands on this capacity. In this context, **Haffner Energy is targeting several million euros in**

² International Energy Agency (IEA), Oil 2017 – Analysis and Forecasts to 2022, "How refiners meet final oil product demand": diesel 34%; kerosene 9%. Source: IEA – Oil 2017.

³ IATA, Fact Sheet – Sustainable Aviation Fuels, 2025 estimate (SAF ≈ 0.6% of global kerosene consumption).

⁴ World Economic Forum, "The cost of sustainable aviation fuel: Can the industry clear this key hurdle?", July 2025 (SAF estimated to cost two to three times as much as fossil kerosene through 2030).

⁵ Regulation (EU) 2023/2405 of 18 October 2023 ("ReFuelEU Aviation"), Annex I: minimum SAF share increased to 6% in 2030.

upfront fees from the granting of technology licences, supplemented by royalties as well as revenue from services and the supply of strategic components.

In terms of EBITDA contribution, each €1 million in upfront payments or royalties from a licence is equivalent to approximately €3 million in revenue generated through equipment sales. Over the longer term, Haffner Energy also intends to take equity stakes in selected projects, with a view to generating recurring revenue from their operations.

The development of SB-HEFA will be supported by SAF Zero, a dedicated entity focused on developing the SAF business through technology licensing, as well as by Mundi Haffner Technologies, Inc. in Canada. Haffner Energy is also in advanced discussions with an investment bank with a view to appointing it to identify industrial and financial partners that would invest in SAF Zero and finance its development.

The development of SAF Zero is intended to be financed by its partners, **without drawing on Haffner Energy's own financial resources** or resulting in any dilution of its shareholders in connection with such financing.

From solid to liquid without going through gas

Producing renewable hydrocarbons from solid biomass is not in itself new. Existing pathways, however, including Fischer-Tropsch, require a complex and highly costly conversion chain involving the production of elementary molecules in gaseous form, which must then be recombined into longer molecules in liquid form.

SB-HEFA oil differs fundamentally from conventional pyrolysis oils, including those produced through fast pyrolysis. The combination of torrefied biomass and the extremely short residence times used in Haffner Energy's thermolysis process is designed to produce an intermediate that is far better suited to hydrotreatment, notably due to its lower oxygen content and acidity, as well as its very low residual solid particle content.

About Haffner Energy

Haffner Energy designs and supplies innovative solutions for the production of competitive renewable fuels from biomass. With over 33 years' experience using all types of biomass, the company has developed proprietary thermolysis and gasification technologies enabling the production of renewable gas, hydrogen, renewable methanol, power, and Sustainable Aviation Fuel (SAF).

As well as supplying technology, Haffner Energy supports its clients in developing industrial projects designed to accelerate the decarbonization of the energy, industrial and transport sectors. Its solutions also contribute to the production of biogenic CO₂ and biochar, thereby supporting the energy transition and the sustainable use of biomass.

Haffner Energy is listed on Euronext Growth (ISIN: FR0014007ND6 – Ticker: ALHAF)

Media contact

Laetitia Mailhes

laetitia.mailhes@haffner-energy.com

+33 (0)6 07 12 96 76

Investor Relations

investisseurs@haffner-energy.com