Press release

thyssenkrupp Uhde

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thyssenkrupp Uhde selected for Elyse Energy's Biomass-to-SAF project in France

- Proven PRENFLO® gasification turns biomass into valuable syngas for Sustainable Aviation Fuel (SAF)

BioTfueL® technology has been selected for the BioTJet project by Elyse Energy and its partners (Axens, Avril, IFPEN). This project will produce sustainable aviation fuel (SAF) from end-of-life wood waste & local forestry residues with the addition of green hydrogen. By 2029, BioTJet will supply sustainable aviation fuel to reduce carbon intensity in air transport, and e-bio-naphtha for road transport and bio-sourced chemistry. Axens signed a license agreement for BioTfueL® technology in 2024, which includes a PRENFLO® gasification technology from thyssenkrupp Uhde, a GASEL® technology from Axens (Fischer-Tropsch and Upgrading) with a basic engineering completed in November 2024 and currently being within the detail engineering phase.

The aviation industry is considered as one of the hard-to-abate sectors in the green transformation, and sustainable aviation fuels are required by the ReFuelEU Aviation regulation, starting with a 2 % quota in 2025 and aiming for 70 % SAF in all EU airports from 2050. The BioTJet project is based on the E-BioTfueL concept, which combines biomass eligible to produce advanced biofuels (RED EU definition), and green or low-carbon hydrogen eligible to produce renewable fuel of non-biological origin (RED EU Definition, also called e-fuels). The technology brings proven process building blocks which have been developed and tested in a semi-industrial plant from 2010 to 2021 by the Bionext consortium consisting of Avril, Axens, CEA, IFP Energies nouvelles, Total Energies and thyssenkrupp Uhde.

The PRENFLO® gasification technology is part of thyssenkrupp's Decarbon Technologies portfolio and will contribute to the sustainable production of biomass-based synthetic products, including methanol, hydrogen, and SAF. With its origins in the Koppers-Totzek process, the PRENFLO® technology has been continuously refined to meet evolving industry needs. It is known for its robustness and flexibility, capable of handling a wide range of feedstocks.

Pascal Penicaud, President of Elyse Energy: "After thoroughly examining the available and bankable technologies, we are now more convinced than ever that we have made the right choice for our project with the E-BioTfueL concept and the technology partners involved to provide cost-competitive SAF and naphtha to the market by 2030 and contribute to address climate change."

Nadja Håkansson, CEO of thyssenkrupp Uhde: "We are proud to see how the E-BioTfueL concept – which includes our advanced PRENFLO® technology – has now turned into a first commercial Biomass-to-SAF application in the European Community. The collaboration with our French partners underscores our commitment to driving the green transformation and delivering sustainable value to our customers and stakeholders."

Quentin Debuisschert, CEO of Axens: "Axens, along with our parent company IFP Energies Nouvelles, has invested significant capital in demonstrating technologies at semi commercial scale and advancing the energy transition, particularly in Sustainable Aviation Fuel (SAF) processes. We are thrilled to be part of the BioTJet project, which is strategic for Axens and our longtime partner thyssenkrupp Uhde. The BioTJet project leverages a breakthrough technology, BioTfueL®," underscoring our commitment to innovative solutions in the energy sector."

Advanced biofuels from sustainable feedstocks

With over 100 gasifiers successfully realized, Uhde is both a pioneer and world leader in gasification technology. PRENFLO® is a pressurized, entrained-flow gasification technology developed and first demonstrated by thyssenkrupp

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Uhde in the late 1980s. It has been implemented in various large-scale projects, including the world's largest single-train, solid feedstock-based IGCC (integrated gasification combined-cycle) power plant, owned and operated by ELCOGAS, located in Puertollano, Spain, and continuously developed further to the application of 100 % biomass. The technology uses so-called second-generation biogenic feedstocks such as waste wood, wood chips, straw, forest residues and agricultural waste. The BioTJet project underscores thyssenkrupp Uhde's commitment to advancing clean energy technologies and supporting the global transition to sustainable sources.

About thyssenkrupp Uhde
thyssenkrupp Uhde combines unique technological expertise and decades of global experience in the engineering, procurement, construction and service of chemical plants. We develop innovative processes and products for a more sustainable future and thus contribute to the long-term success of our customers in almost all areas of the chemical industry. Our portfolio includes leading technologies for the production of base chemicals, fertilizers and polymers as well as complete value-chains for green hydrogen and sustainable chemicals. www.thyssenkrupp-uhde.com

About Axens
The Axens Group (www.axens.net) offers a complete range of solutions for the conversion of oil and biomass into cleaner fuels, the production and purification of major petrochemical intermediates, the chemical recycling of plastics, natural gas treatment and conversion options, water treatment and carbon capture. Their offer includes technologies, equipment, furnaces, modular units, catalysts, adsorbents and related services. Axens is ideally positioned to cover the entire value chain, from feasibility studies to start-up and monitoring of units throughout their lifecycle. This unique position guarantees optimum performance and a reduced environmental footprint. Axens' international offering is based on highly qualified human resources, modern production facilities and an extensive global network for industrial, technical support and sales services. Axens is an IFP Energies Nouvelles Group company.

To find out more, visit our website, and follow us on X and LinkedIn.
Contact press: press@axens.net

About Elyse Energy
Founded in 2020, Elyse Energy is an independent French industrial SME and a pioneer in the production of low-carbon molecules. Elyse Energy designs, develops, finances, builds, and operates production facilities for sustainable fuels derived from renewable and nuclear electricity, as well as recycled carbon from industry or biomass. With a team of over 80 employees and the French Tech 2030 label, Elyse Energy has developed a portfolio of low-carbon molecule production projects across France, Spain, and Portugal. The company is supported by two key shareholders with extensive experience in constructing and operating renewable energy production facilities: Falkor and Vol-V. Elyse Energy also benefits from the backing of several financial partners specializing in sustainable infrastructure, including Hy24, PGGM, Bpifrance and Mirova.

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