

Green fuels Hamburg industrial production of sustainable aviation fuels for climate-neutral aviation

23 June 2022

Berlin, Hamburg

- A consortium with Uniper, Airbus, Siemens Energy and Sasol ecoFT, together with other partners, aims to supply Hamburg, as an aviation location, with sustainable aviation fuels
- Integrated hydrogen and eSAF production on an industrial scale
- Annually more than 10,000 tonnes of green kerosene from 2026 onwards

Under the name "Green Fuels Hamburg", the energy supplier Uniper, the energy technology group Siemens Energy, the aircraft manufacturer Airbus and the chemical and energy company Sasol ecoFT announced that they are investigating the feasibility of a commercial project to produce sustainable aviation fuels (SAF) in Germany.

The four project partners cover the entire value-chain to produce CO₂-neutral kerosene, so-called power-to-liquid or PtL kerosene for short. They are supported by the Technical University of Hamburg (TUHH) as a consultant partner as well as the Hamburg Senate (BWI, BUKEA) and Hamburg Airport. In addition, Emirates Airline has expressed its interest in being involved in the use of the PtL kerosene produced.

"Green Fuels Hamburg" aims to make a significant contribution to de-carbonising the aviation sector. If feasible, the production capacity required would be at least 10 000 tonnes of green kerosene annually for aviation in the first expansion stage from 2026. This means that this plant alone could provide 20% of the blending quota of PtL kerosene specified by the German government in the PtL roadmap from 2026.

As one of the world's leading locations for innovation and aviation, Hamburg offers excellent conditions for this pioneering large-scale project, as the region is close to renewable energies and has the necessary customers in industry and aviation. A large-scale commercial plant for the production of green hydrogen from electricity generated by offshore wind turbines is planned to be built in the area of the Port of Hamburg. The potential PtL fuels plant would be using the Fischer-Tropsch (FT) synthesis process, to produce sustainable aviation fuel from green hydrogen and processed biogenic carbon dioxide. The sustainable aviation fuel would be CO₂-neutral PtL kerosene, which is already certified for use as aviation fuel.

"Green Fuels Hamburg" could thus be a pioneer for PtL production in Germany and actively supports the ambitions of the Hanseatic City of Hamburg to build a sustainable economy with renewable energy sources.

Voices of Hamburg's Senate:

Michael Westhagemann, Senator for Economical Affairs and Innovation:

"On the way to climate neutrality, green hydrogen is a key technology of the future - this also applies to its downstream products such as electricity-based fuels. The market ramp-up of hydrogen is one of the most important projects in northern Germany's economic and energy policy and is of immense importance for the whole of Germany. With a resurgence in passenger numbers, high air freight volumes and rising oil prices, alternatives to fossil kerosene and solutions for reducing CO₂ emissions are indispensable. The climate-neutral aviation of the future needs global projects like "Green Fuels Hamburg" to take a decisive step forward with production. This is an excellent opportunity for Hamburg as a place for aviation to also set impulses in Sustainable Aviation Fuels."

Jens Kerstan, Senator for Environment, climate, energy and agriculture:

"Hamburg as a modern metropolis and major industrial location in Germany must do everything to protect people from the consequences of climate change. For the necessary transformation of the energy system, further energy sources for decarbonisation are needed in addition to direct electrification. In particular, green hydrogen and synthetic energy sources based on it will play a key role. Green hydrogen is an important building block for achieving the German and European climate targets and for supporting industry on the path to climate neutrality. Overall, the Hamburg location offers very good conditions for the "Green Fuels Hamburg" project to implement the future-oriented concept of Uniper SE and Siemens Energy already by 2025. Green Fuels based on hydrogen will play a decisive role in the decarbonisation of air transport and maritime shipping. Against this background, Hamburg is a particularly suitable location - in this respect, the project will advance the transformation of Hamburg's economy and thus also contribute to achieving Hamburg's climate targets. We therefore support the consortium and very much welcome the fact that it is helping to move Hamburg towards a climate-neutral future.

Voices of Partners and Supporter:

Dr. Holger Kreetz, COO Asset Management at Uniper Kraftwerke:

"One of Uniper's main goals is the effective decarbonisation of other industries as well as its own, without neglecting security of supply. Hamburg as a location for innovation - with direct access to renewable energies as well as the customers on the industrial and aviation side - is predestined for a pioneering role in the matter of power-to-liquid. With this partnership, we will be able to cover approx. 1/5 of the quantity of green PtL kerosene required in Germany already in the initial phase. Green Fuels Hamburg will make a significant contribution to decarbonisation, but also to security of supply".

Stefano Innocenzi, Senior Vice President New Energy at Siemens Energy:

"Electricity-based aviation fuels based on green hydrogen and renewable energies are the key to sustainable flying. So far, however, green kerosene is not available in relevant quantities. This is exactly where we come in with "Green Fuels Hamburg": Together with our partners, we are now working at full speed to bring e-kerosene to market on a large scale and to take a pioneering role in the decarbonisation of aviation."

Dr. Andre Walter, Head of Plant and Industrial Site Hamburg Airbus at Airbus Operations GmbH:

"For a climate-neutral future of aviation, three things are crucial from Airbus' point of view: firstly, increasing the efficiency of our aircraft and fleet modernisation; secondly, Sustainable Aviation Fuels (SAF); and thirdly, hydrogen as an energy carrier. As is well known, green hydrogen is also needed for PtL kerosene, also known as eSAF. Green Fuels Hamburg will make an important contribution to the ramp-up of PtL production in Germany and could become a technology export hit! Airbus has been involved in the use and market development of SAF for several years. Most of our Beluga flights are operated from Hamburg with an 18% blend. In this respect, it is only logical that we are involved in a project in Hamburg and stand ready as a buyer of the PtL kerosene produced together with customers of Hamburg Airport."

Will Löfberg, Vice President - International, Government and Environment Affairs at Emirates Airline:

"Emirates is strongly supportive of this initiative to develop environmentally and economically sustainable power-to-liquid fuel. The launch of the "Green Fuels Hamburg" project is a major milestone towards scaling up the production of this type of sustainable aviation fuel, which has the potential to make a substantial contribution towards the aviation industry's emissions reduction goals. We welcome Germany's leadership in bringing together international

expertise and investing in the technology to bring power-to-liquid fuel ultimately to the market.”

Dr Helge Sach, Senior Vice President – Sasol ecoFT:

“At Sasol ecoFT we pioneer sustainable fuels and chemicals to transition to a net-zero world. We will use our proprietary technology and know-how of running large-scale production plants to contribute to the success of this truly world-changing initiative.”