European Commission

BIOFUELS AND BIOREFINERIES

INNOVATION FUND

Deployment of net-zero and innovative technologies

BioOstrand: Biorefinery Östrand – The first commercial deployment of solid biomass-and-power-to- Sustainable Aviation Fuels technology line-up

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

Biorefinery Östrand will contribute to the decarbonisation of the transport sector by creating a long-lasting solution for producing advanced biofuels and electro-fuels (e-fuels) from sustainable solid biomass and renewable electricity. The project will design, build and operate the world's first commercial scale biorefinery producing sustainable aviation fuel (SAF) and naphtha from solid forest residues. The project will deploy a breakthrough Anything-to-Liquid (XTL) pathway, solid biomass gasification and Fischer-Tropsch synthesis, with an electrolyser utilising renewable electricity. This will result in 100% relative greenhouse gas (GHG) emission avoidance compared to the reference scenario of fossil fuels.

The project is pioneering solid biomass-to-biofuels production at commercial scale. It goes beyond the state-of-the-art in utilising sustainable solid biomass as a feedstock in SAF production, and also

COORDINATOR
BIOREFINERY OSTRAND AB

LOCATION
Sweden

CATEGORY
Energy intensive industries (EII)

SECTOR
Biofuels and bio-refineries

AMOUNT OF INNOVATION FUND GRANT
EUR 166,648,512

EXPECTED GHG EMISSIONS AVOIDANCE
8,762,169 tonnes CO2 equivalent

STARTING DATE
01 January, 2024

ENTRY INTO OPERATION DATE
30 June, 2029

FINANCIAL CLOSE DATE
30 June, 2025

Updated on 02 December 2024

delivers scale of operations, creating a major leap towards industrial production and leading the way for the future SAF industry. The technology set-up expands the feedstock base of SAF production to include solid forest industry residues – which helps to break the SAF industry's dependency on the limited pool of oleochemical feedstocks that are in use today. To increase the hydrocarbon yield, renewable hydrogen is added to the process, facilitating a more efficient use of the feedstock by turning more carbon into final product. The project showcases a cutting-edge integration of a biorefinery with a modern pulp mill, resulting in significant efficiency gains. This will lead to SAF and naphtha production, of which half are e-fuels half are advanced biofuels, with an accumulated GHG emission avoidance of 8.7 million tonnes of CO2 equivalent over the first ten years of operation. For reference, this is equivalent to twice the annual emissions from domestic aviation in Sweden.

Biorefinery Östrand will contribute to the climate-neutrality target under the European Green Deal by bringing renewable fuels and a commercial solution for decarbonising transport to the market, particularly the hard-to-abate aviation segment. Notably, the Biorefinery Östrand project contributes directly to achieving the SAF targets proposed in the ReFuelEU Aviation Initiative, as well as the renewable hydrogen and self-sufficiency targets outlined in the REPowerEU Action Plan and the EU Hydrogen Strategy.

The project contributes to the European value chain for advanced biofuels, starting with forest residues and locally produced renewable electricity and ending with filling the fuel tanks of the end-users with sustainable fuels. This provides both sustainability and robustness for the vital European transport economy – while simultaneously showcasing both a technology and a business model that can be replicated across Europe and beyond. The project is estimated to generate 60 direct and 660 indirect full-time equivalent per year of new green jobs which will also benefit the local economy.

| Participants

BIOREFINERY OSTRAND AB	Sweden