

The Project

FUEL-UP – Production of advanced biofuels via pyrolysis and upgrading of 100% biogenic residues for aviation and marine sector, including full valorisation of side streams – is a 4-year Horizon Europe Innovation Action project aimed at transforming biogenic waste into advanced biofuels to enable the green transition and the defossilization of the aviation and the marine transport sectors.



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Project Partners

Project Coordinator

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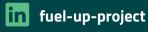
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@FuelUp_Project

Fuel≜Up

Powering a Greener Future for Aviation and Marine Transport

Objectives



Demonstrating the simultaneous production of renewable SAF and marine fuels from **100% biogenic waste**.



Achieving up to **80%** reduction in GHG emissions compared to fossil fuels and 47% compared to the state-ofthe-art advanced biofuels.

Ensuring that **new value chains** arise by 2030 and replicate by 2035 to then deploy by 2040 in 25 sites among the 12 potential EU countries.



Paving the way to **EU** certification to ensure that production is compatible with practical usage and that it is socially accepted.

FUEL-UP Production Process

FUEL-UP focuses on the production of **stabilized deoxygenated pyrolysis oils** (SDPO) from pyrolysis oils (PO) derived from wood residues that can be subsequently processed towards a fully hydrotreated oil (HPO) in a refinery to ensure transformation of all streams to the key **aviation** and **marine fuels** sectors.

Technology Implementation

FUEL-UP

Flexible and efficient processing allowing

- Valorisation of forest residues and diversification of feedstock
- Different fuel qualities for two main applications: marine & avaition
- **Blending of biofuels** with fossil fuels and synthetic renewable fuels

Environmentally friendly process

- Close to carbon neutral process with green H₂
- -42% biogenic carbon emissions with carbon cycle
- **Circular models** to estimate H₂ production from aqueous phase

Maximising process side streams valorisation

- Aqueous phase treatment to produce biogas and extract of alcohols, ketones and carboxylic acids
- Aromatisation of heavy naphtha fraction
 to produce solvents
 - Blending of light naphtha fraction to biomethanol to produce marine fuel

Ensuring market needs

- Derisking of technologies at **TRL7** with **high scalability** potential to commercial scale
- Capacity of 90 kt/HPO by 2030 at commercial scale