

## Project Partners

Project Coordinator



## 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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[www.fuelup-project.eu](http://www.fuelup-project.eu)



[info@fuelup-project.eu](mailto:info@fuelup-project.eu)



[fuel-up-project](https://www.linkedin.com/company/fuel-up-project)



[@FuelUp\\_Project](https://twitter.com/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-of-the-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

Flexible and efficient processing allowing

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

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**

Environmentally friendly process

- Close to **carbon neutral** process with **green H<sub>2</sub>**
- **-42% biogenic carbon** emissions with carbon cycle
- **Circular models** to estimate H<sub>2</sub> production from aqueous phase

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

