



HIGFLY aims to develop the next generation of technologies for the production of sustainable aviation fuel from abundant second-generation feedstock such as forestry and agricultural residues as well as biogenic waste, valorizing them in a resource, energy and cost effective manner.

The **HIGFLY** project will develop novel catalytic materials, sustainable solvents, as well as efficient reactor and separation technologies for the renewable energy sector, taking into consideration the complete value chain, from bio feedstock to sustainable aviation fuel.


<https://www.higfly.eu/>


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HIGFLY will accelerate the commercialization of the next generation of sustainable aviation fuels and increase their total share in the EU market by:

- 1 Using abundant and sustainable feedstocks, focusing on feedstock flexibility and synergies across the bioenergy sector.
- 2 Developing innovative, highly efficient and scalable reactor and separation technologies to produce sustainable aviation fuels in a resource, energy and cost-effective manner.
- 3 Developing new and robust catalytic materials and sustainable solvents for the renewable energy sector.
- 4 Advancing the knowledge of its innovative and highly efficient conversion technologies and integrative approaches to valorize abundant and sustainable feedstocks in a resource, energy, and cost-effective manner.

Specific objectives of the HIGFLY project:

- O1:** To develop and demonstrate at TRL3-4 novel technologies to produce jet fuel precursors from C5 biorefinery streams with more than 90% carbon efficiency.
- O2:** To develop and demonstrate at TRL3-4 a robust and continuous catalytic process to produce jet fuel via condensation of precursors (i.e., bio-oxygenates) and further hydrodeoxygenation to yield hydrocarbons in the kerosene hydrocarbon range with $\geq 80\%$ carbon efficiency.
- O3:** To develop and demonstrate at TRL3-4 separation technologies for the purification of jet fuel precursors (i.e., bio-oxygenates) from the reaction mixtures.
- O4:** To evaluate catalytic routes to valorize light oxygenates present in aqueous side-streams.
- O5:** To analyze the suitability of the produced biofuels for the aviation sector and analyze the sustainability of producing them from abundant and sustainable feedstocks via **HIGFLY** technologies.

Potential integration of HIGFLY concept with other biorefineries:

